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SB

STATISTICAL BULLETIN

Vol 65 No 1
Jan-Mar 1984

4 **Alcohol and Other Drug Abuse Among Adolescents.** What we know about drug use among high school students and the need for early preventive education

16 **United States Population Outlook.** Changes coming. By the year 2050 the major age groups will each constitute about one-quarter of the nation's population

20 **Measurement of Overweight.** Based on the 1983 Metropolitan Height and Weight Tables. Body Mass Index values provide a convenient measure of overweight

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The Statistical Bulletin (ISSN 0741-9767) Copyright 1984 Metropolitan Life Insurance Company One Madison Avenue, New York, N.Y. 10010

Published four times a year by Metropolitan Life Insurance Company, John J. Creedon, President and Chief Executive Officer; Robert Schwartz, Chairman; Harry Kamen, Senior Vice-President and Secretary; Arthur G. Typermass, Senior Vice-President and Treasurer. Printed in U.S.A.

Subscriptions: U.S., its territories and Canada, $50 for one year (U.S. currency). Outside U.S. and Canada add $10 for postage.

Send to: Statistical Bulletin, Metropolitan Life Insurance Company
One Madison Avenue, New York, N.Y. 10010

Postage paid at New York, N.Y. Postmaster send address changes to above address.

Letters will be published at the discretion of the editor as space permits and subject to editing and abridgment. They should be typewritten, double-spaced. Send to:

Statistical Bulletin, 16UV
Metropolitan Life Insurance Company
One Madison Avenue, New York, N.Y. 10010

A Message to Our Readers

It is a pleasure to introduce our readers to the new Statistical Bulletin, now published under the auspices of Metropolitan's Medical Department. SB's new editor Charles B. Arnold, M.D., M.P.H., a noted epidemiologist involved in preventive medicine, was, until recently, Professor in Health Services Management at New York University, and is a Past President of the American College of Preventive Medicine. He is also an editor of the Journal of Preventive Medicine.

Under Dr. Arnold's editorial direction, future issues of the Statistical Bulletin will continue to focus on statistical analyses as well as on the broader aspects of preventive medicine and public health. Additional topics such as cost-effective management of health resources will be covered. New features will include guest editorials, Capsule Briefs, Historical Perspectives and letters to the editor. We hope that this new Statistical Bulletin will continue to be useful to our current readers and to others in a variety of businesses, professional, and health-related fields.

We regret that in order to continue publishing the Bulletin it has become necessary to make it available only by subscription. Specific details on rates and how to subscribe are enclosed with this complimentary copy.

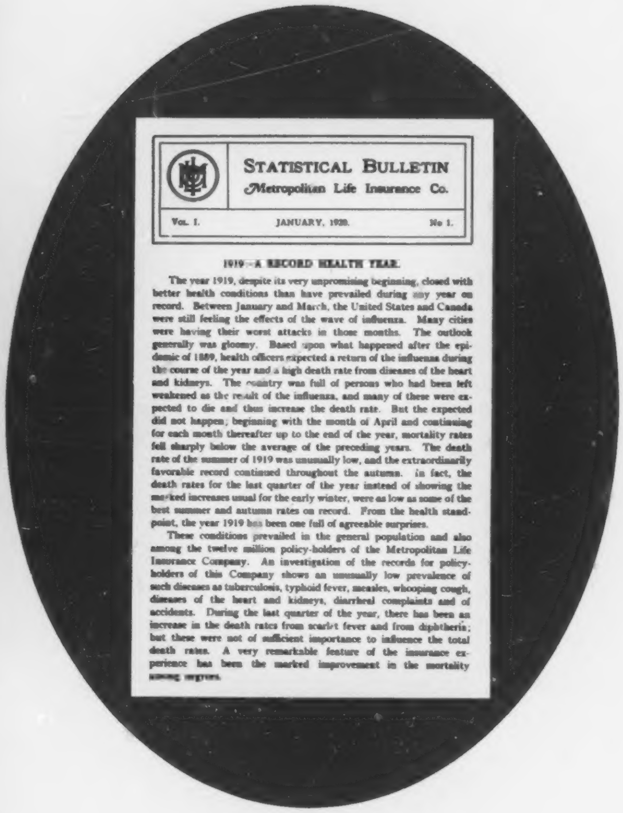
Since it is you, our readers who, in the final analysis, will be the ones to determine the merit of this newly-expanded publication, we look forward to hearing from you.

Paul S. Entmacher, M.D.

Paul S. Entmacher, M.D.
Vice-President and
Chief Medical Director

Contents

1 A Message to Our Readers
Paul S. Entmacher, M.D.
2 Editorial: 1984 and Beyond
4 Alcohol and Other Drug Abuse Among Adolescents
Bianca Cody
14 Capsule Briefs
16 United States Population Outlook
Stanley Kranczer
20 Measurement of Overweight
Frederic Seltzer
24 Health and Safety Education Materials
Back Cover/Historical Perspectives



STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

Vol. I. JANUARY, 1920. No 1.

1919—A RECORD HEALTH YEAR.

The year 1919, despite its very unpromising beginning, closed with better health conditions than have prevailed during any year on record. Between January and March, the United States and Canada were still feeling the effects of the wave of influenza. Many cities were having their worst attacks in those months. The outlook generally was gloomy. Based upon what happened after the epidemic of 1889, health officers expected a return of the influenza during the course of the year and a high death rate from diseases of the heart and kidneys. The country was full of persons who had been left weakened as the result of the influenza, and many of these were expected to die and thus increase the death rate. But the expected did not happen; beginning with the month of April and continuing for each month thereafter up to the end of the year, mortality rates fell sharply below the average of the preceding years. The death rate of the summer of 1919 was unusually low, and the extraordinarily favorable record continued throughout the autumn. In fact, the death rates for the last quarter of the year instead of showing the marked increases usual for the early winter, were as low as some of the best summer and autumn rates on record. From the health standpoint, the year 1919 has been one full of agreeable surprises.

These conditions prevailed in the general population and also among the twelve million policy-holders of the Metropolitan Life Insurance Company. An investigation of the records for policyholders of this Company shows an unusually low prevalence of such diseases as tuberculosis, typhoid fever, measles, whooping cough, diseases of the heart and kidneys, diarrheal complaints and of accidents. During the last quarter of the year, there has been an increase in the death rates from scarlet fever and from diphtheria; but these were not of sufficient importance to influence the total death rates. A very remarkable feature of the insurance experience has been the marked improvement in the mortality among negroes.

SIXTY-FOUR YEARS AGO, the Statistical Bulletin was launched with these words:

"During recent years the Metropolitan Life Insurance Company has sent to health officers and to the press, statements covering the public health statistics of its policyholders. These statements have been so well received and commented upon, that it has seemed desirable to prepare them in more attractive form, to issue them at more regular intervals and to enlarge their scope. It is our purpose to portray the current vital statistics of the Company's membership. The health problems which are outlined by the figures of mortality will receive attention, as will also the effects on life conservation of the various health activities in which the Company is engaged for its policyholders.

"These bulletins will serve to point out what the current conditions of health and life are throughout the United States and Canada, as shown by the latest tabulations of the death certificates received by the Company. Epidemic conditions prevailing here and there in the country will, in many instances, be made public for the first time in our tabulations. The present membership of the Company numbers about eighteen million men, women and children, living in virtually every State of the Union and in every Province of Canada. The policyholders form a body representative, with respect to economic status, occupation, race or color, sex and age, of the general population of English speaking America. What is found among this group should serve as an excellent indication of what is transpiring among the people at large."

The First SB

SB was a novel publication containing data analyses of many public health problems of its day: the influenza pandemic 1918-24, diphtheria, tuberculosis, dangers in childbearing, and many more. Further, the young sciences of demography and epidemiology were applied and described in interesting, readable prose. Additionally, it reflected an early recognition of new problems by SB's parent, Metropolitan's Statistical Bureau. For example, in the first volume (1920) automobile accident fatalities, and also heart disease ("a problem new to the public health movement") were featured. Later, as history well records, these conditions were to become 20th century epidemics. To browse through those early editions provides a rare encapsulated view of this nation's health, 1920 to the present, one not duplicated elsewhere.

Changes

Through the intervening years demography, public health, statistical analysis, and SB changed. For example, Metropolitan's policyholders now number more than 47 million and represent all regions of the U.S. and Canada. SB reflected a growing national recognition that statistical analyses were essential to social and health planning, as well as to good management. SB became an important contributor to discourses about the public's health.

In 1983, as part of a reorganization, SB was relocated in the Medical Department's Health and Safety Education Division, which has a long-standing involvement with public health concerns. This new site seems both appropriate and comfortable, since SB's aims have always been clearly linked to those of the Health and Safety Education Division. The Medical Department, too, has a lengthy history of social and medical care for Metropolitan employees. Together, each is continuously involved in a variety of outreach programs that relate to SB's perspective.

How will these changes affect SB? First, the nearly 60,000 current recipients are being asked to subscribe. This was a difficult decision made necessary by cost factors which were very real. In the most important ways, SB will remain the same; it will retain its concern for timely, high quality analysis of important American and international health and demographic problems. In addition to a continuing editorial emphasis on the statistical aspects of health, we shall write about other topics, sometimes in a social-medical as well as demographic vein; for example, Alcohol and Drug Abuse in Adolescents (see the article by Bianca Cody in this issue); medical care use and overuse; health promotion and wellness; and employee disability after coronary bypass surgery, are but a few. We hope that SB's articles will continue to edify, occasionally pose the unexpected, but always inform.

Trends and Dialogue

Two new sections, Capsule Briefs and an historical perspective will also appear with this issue. Capsule Briefs will introduce selected and timely abstracts of recent articles that have appeared elsewhere which we think you will find important. For example, do you know why blood pressure may be a good way to measure how some people feel about their doctors? Capsule Briefs this issue tells what a group of Italian investigators found.

SB will always have a broad time perspective and, from historical milestones, will try to understand and convey the long-term implications of current events. The past, we know, can be an effective teacher. So, key historical events will be reviewed each issue (see back cover) that remind us of essential continuities in social and health questions which confront our contemporary world.

As the new SB hopes to be an important part of your intellectual diet, we want you to become part of ours, too. We will publish letters to the editor. We will welcome your comments and criticisms about our articles. We hope that if you have an alternate interpretation of our analysis, you will write and explain. In doing so, you will be helping to increase our publication's liveliness and, most essentially, contribute to a proper reflection of its exacting readers' views.

We look forward to providing you with useful, thought-provoking information and analyses that may help you plan for the years ahead.

Charles B Arnold

Charles B. Arnold, M.D., M.P.H.
Editor in Chief

ALCOHOL AND OTHER DRUG ABUSE AMONG ADOLESCENTS

The use of alcohol, cigarettes, and other drugs by children and teenagers in the United States has reached alarming proportions. The emotional and physical impact of such use on developing minds and bodies and the potential effects on society are of major concern. At least one in every 16 high school seniors is actively smoking marijuana on a daily basis and one in 16 drinks alcohol daily. About two-thirds of all young people try an illicit drug before they finish high school and about one-third try an illicit drug other than marijuana. Although there has been a slight decline in teenage use of many illicit drugs from the peak levels attained in the late 1970s, the present levels are the highest to be found in any nation in the industrialized world.

Surveys of Drug Abuse

Information on the current prevalence of drug use among American high school seniors and data on recent trends in such use have been gathered in annual nationwide surveys conducted for the National Institute on Drug Abuse by the University of Michigan's Institute for Social Research.[1] Beginning with 1975, in the spring of each year questionnaires were given to high school seniors in approximately 125 to 140 public and private high schools, selected to provide a cross section of high school students throughout the United States. Completed questionnaires were obtained from 77 to 83 percent of all students in the sample in the participating schools each year. The 1982 survey involved 17,700 high school seniors; since 1975 more than 126,000 seniors have participated in these surveys.

The questionnaires covered the use of 11 separate classes of drugs: marijuana, inhalants, hallucinogens, cocaine, heroin, natural synthetic opiates other than heroin, stimulants, sedatives, tranquilizers, alcohol, and cigarettes. In some cases additional information was sought for several subclasses of these drugs: PCP and LSD (both hallucinogens), barbiturates and methaqualone (both sedatives), and the amyl and butyl nitrites (both inhalants), either because of increasing concern about their rising popularity or because of substantial differences in trends. Except for the findings on alcohol, cigarettes, and nonprescription stimulants, practically all of the data elicited by the questionnaires dealt with illicit drug use. Respondents were asked to exclude any occasions on which they used a drug under medical supervision.

Prevalence Among High School Seniors

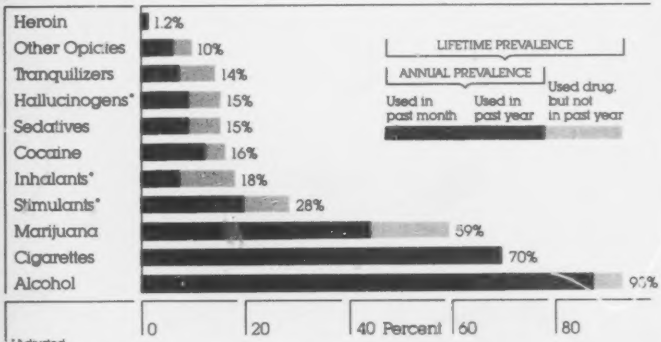
Figure A illustrates the prevalence and most recent use of 11 types of drugs by high school seniors in the class of 1982. Use of the two major *licit* drugs (alcohol and cigarettes) was more widespread than use of any of the illicit drugs. As shown in the figure, nearly all students (93 percent) had tried alcohol at some time and the great majority (70 percent) had used it in the previous month. About 70 percent had tried cigarettes at some time, while 30 percent had smoked to some extent during the previous month.

> "Seniors planning to go to college reported lower rates of illicit drug use than students not planning on college."

Marijuana was by far the most widely used *illicit* drug, with 59 percent of the seniors reporting some use during their lifetime, 44 percent reporting some use in the previous year, and 29 percent reporting some use in the previous month. Of the other *illicit* drugs, stimulants ranked second (28 percent) in lifetime prevalence. Inhalants at 18 percent and cocaine at 16 percent ranked third and fourth, closely followed by sedatives and hallucinogens—both at 15 percent—and tran-

quilizers at 14 percent. Opiates other than heroin had been used by 10 percent of the seniors, but only 1.2 percent admitted that they had ever used heroin. Figure A also indicates that illicit drug classifications generally remain in the same order when ranked by prevalence in the most recent month or year. Inhalants were the exception because the use of certain types of inhalants, such as glues and aerosols, tends to be discontinued at a relatively early age.

Figure A-Prevalence of Drug Use
High School Seniors, Class of 1982



*Adjusted
NA Not available
Source of basic data: Student Drug Use in America: 1975-1982, National Institute on Drug Abuse

The more frequent the use of drugs the greater the health hazard. Respondents were considered *daily* users of a drug other than cigarettes if they reported that they had used the drug on 20 or more occasions in the previous 30 days; for cigarettes, the criterion was smoking one or more per day. As shown in Figure B, cigarettes were used daily by more members of the class of 1982 (21 percent) than any other substance; as many as 14 percent reported smoking half a pack or more per day. Marijuana was used on a daily basis by 6.3 percent of the seniors in the survey. Although overall alcohol use among these young people was 5.7 percent, a substantial proportion (41 percent) reported that on at least one occasion during the prior two weeks they had five or more drinks in a row. Less than 1 percent of the respondents reported daily use of any of the illicit drugs other than marijuana.

In general, higher proportions of male than female students were involved in illicit drug use in 1982. The annual prevalence rates for such major drug classifications as inhalants, hallucinogens, and heroin, as well as the specific drugs PCP, LSD, and the nitrites, were one and a half to two times higher among males than among females. Males reported somewhat higher usage rates than did females for cocaine, sedatives (including the barbiturates and methaqualone), marijuana, and opiates other than heroin. Tranquilizers were used by about equal proportions of both sexes. Only stimulants were used by a slightly greater proportion of females than males—probably because more females used stimulants to achieve a weight loss. Slightly more males than females reported alcohol use, but frequent and heavy drinking were disproportionately concentrated among males. However, cigarette smoking was more prevalent among females than among males.

Seniors expecting to complete four years of college reported lower rates of illicit drug use than did students who did not plan on college. In the case of *frequent* use of illicit drugs, there were even greater differences according to college plans. While there was little difference between the two groups in overall alcohol usage, frequent use of alcohol was more prevalent among those who did not expect to attend college. By far the largest difference in substance use involved cigarette smoking; only 8 percent of the collegebound smoked half a pack or more each day, compared with 21 percent of the non-collegebound.

Regional Differences

The annual prevalence rates of illicit drug use among high school seniors of the class of 1982 varied regionally, with the highest rate in the Northeast (55 percent), followed by the West (52 percent), the North Central region (50 percent), and the South (42 percent). The Northeast showed the highest annual rates of use of marijuana, inhalants, hallucinogens, and alcohol, the North Central area reported the greatest use of stimulants, while the West had the highest level of cocaine use. The South recorded the lowest rates for marijuana, hallucinogens, cocaine, and stimulants. The use of barbiturates and tranquilizers was about the same across all regions of the country. Alcohol use tended to be somewhat lower in the South and the West, while regular cigarette smoking (half a pack or more a day) was distinctly lower in the West.

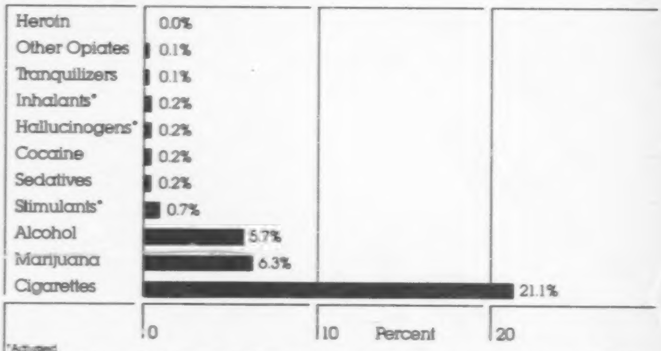
Illicit drug use by the class of 1982 was highest in the large metropolitan areas, slightly lower in other cities, and lowest in nonmetropolitan areas. The largest absolute difference associated with population density was that for marijuana, but there were also strong differences for cocaine, LSD, and PCP.

Ethnic Variations

A recent reevaluation of a 1978 national survey of 10th to 12th grade high school students[2] has provided pertinent information on ethnic differences in the use of alcohol. The study indicated that black high school students drank less alcohol than did white high school students. Abstinence rates were higher for black than for white students—37.0 percent of the black students were abstinent, compared with 20.4 percent of the white students. The proportions of moderate-to-heavy and heavy drinkers were also lower among black students—only 3.8 percent of the black students were heavy drinkers, compared with 16.2 percent of the white students. The researchers noted that exclusion of high school dropouts did not affect the results to any great extent; census data have shown approximately equal proportions of black and white dropouts in the age group studied. The same survey also showed little or no difference between white and black students in the reporting of *illicit* drug use.

> "At least one in every 16 high school seniors is actively smoking marijuana on a daily basis and one in 16 drinks alcohol daily."

Figure B—Prevalence of Daily Drug Use in 30-Day Period
High School Seniors, Class of 1982



*Adjusted.
Note: Cigarettes—smoked one or more per day; all other drugs—used on 20 or more occasions in the preceding 30 days.
Source of basic data: Student Drug Use in America: 1975-1982. National Institute on Drug Abuse

Trends Among High School Seniors

Recent trends in drug use by high school seniors during the 1975-1982 period are shown in Tables 1A and 1B. Although the proportion of seniors who have ever tried marijuana has changed very little since the peak level of 1979, current use (at least once in the previous month) has shown a considerable decrease—from 37 percent in 1979 to 29 percent in 1982. Even more meaningful perhaps are the figures for *daily* use, which climbed rapidly from 6 percent of the students in 1975 to 11 percent in 1978, and then dropped back just as rapidly to 6 percent in 1982.

Annual prevalence rates in the use of PCP ("angel dust") have declined dramatically since

Table 1A
Trends in Drug Use by High School Seniors 1975-1982

	Used Once or More in Lifetime Percent of Class of								Used Once or More in Past 12 Months Percent of Class of							
Type of Drug	1975	1976	1977	1978	1979	1980	1981	1982	1975	1976	1977	1978	1979	1980	1981	1982
Marijuana	47	53	56	59	60	60	60	59	40	45	48	50	51	49	46	44
Inhalants	NA	10	11	12	13	12	12	13	NA	3	4	4	5	5	4	5
Inhalants Adjusted*	NA	NA	NA	NA	19	18	17	18	NA	NA	NA	NA	9	8	6	7
Amyl and Butyl Nitrites	NA	NA	NA	NA	11	11	10	10	NA	NA	NA	NA	7	6	4	4
Hallucinogens	16	15	14	14	14	13	13	13	11	9	9	10	10	9	9	8
Hallucinogens Adjusted†	NA	NA	NA	NA	19	16	16	15	NA	NA	NA	NA	13	11	10	9
LSD	11	11	10	10	10	9	10	10	7	6	6	6	7	7	7	6
PCP	NA	NA	NA	NA	13	10	8	6	NA	NA	NA	NA	7	4	3	2
Cocaine	9	10	11	13	15	16	17	16	6	6	7	9	12	12	12	12
Heroin	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Other Opiates‡	9	10	10	10	10	10	10	10	6	6	6	6	6	6	6	5
Stimulants‡	22	23	23	23	24	26	32	36	16	16	16	17	18	21	26	26
Stimulants Adjusted‡¶	NA	NA	NA	NA	NA	NA	NA	28	NA	NA	NA	NA	NA	NA	NA	20
Sedatives‡	18	18	17	16	15	15	16	15	12	11	11	10	10	10	11	9
Barbiturates‡	17	16	16	14	12	11	11	10	11	10	9	8	8	7	7	6
Methaqualone‡	8	8	9	8	8	10	11	11	5	5	5	5	6	7	8	7
Tranquilizers‡	17	17	18	17	16	15	15	14	11	10	11	10	10	9	8	7
Alcohol	90	92	93	93	93	93	93	93	85	86	87	88	88	88	87	87
Cigarettes	74	75	76	75	74	71	71	70	NA	NA	NA	NA	NA	NA	NA	NA

* Adjusted for underreporting of amyl and butyl nitrites.
† Adjusted for underreporting of PCP.
‡ Only drug use which is not prescribed by a physician.
¶ Adjusted for overreporting of nonprescription stimulants.
NA: Not available.
Source of basic data: *Student Drug Use in America: 1975-1982.* National Institute on Drug Abuse.

measurement was started in 1979—from 7 percent to 2 percent over a four-year period. Annual use of the amyl and butyl nitrites ("poppers" and "snappers") also declined appreciably between 1979 and 1981, and continued at the lower level in 1982. Annual prevalence rates for methaqualone increased between 1978 and 1981, but the drug declined in popularity for the first time in 1982. The annual use of barbiturates, on the other hand, has been declining steadily.

The annual prevalence of heroin use has remained constant since 1975, but the degree of use is likely to be underestimated. The use of opiates other than heroin remained at much the

Table 1B
Trends in Drug Use by High School Seniors 1975-1982

Type of Drug	Used Once or More in Past 30 Days Percent of Class of								Daily Use in Past 30 Days Percent of Class of							
	1975	1976	1977	1978	1979	1980	1981	1982	1975	1976	1977	1978	1979	1980	1981	1982
Marijuana	27	32	35	37	37	34	32	29	6.0	8.2	9.1	10.7	10.3	9.1	7.0	6.3
Inhalants	NA	1	1	2	2	1	2	2	NA	.0	.0	.1	.0	.1	.1	.1
Inhalants Adjusted*	NA	NA	NA	NA	3	3	2	3	NA	NA	NA	NA	.1	.2	.2	.2
Amyl and Butyl Nitrites	NA	NA	NA	NA	2	2	1	1	NA	NA	NA	NA	.0	.1	.1	.0
Hallucinogens	5	3	4	4	4	4	4	3	.1	.1	.1	.1	.1	.1	.1	.1
Hallucinogens Adjusted†	NA	NA	NA	NA	6	4	4	4	NA	NA	NA	NA	.2	.2	.1	.2
LSD	2	2	2	2	2	2	3	2	.0	.0	.0	.0	.0	.0	.1	.0
PCP	NA	NA	NA	NA	2	1	1	1	NA	NA	NA	NA	.1	.1	.1	.1
Cocaine	2	2	3	4	6	5	6	5	.1	.1	.1	.1	.2	.2	.3	.2
Heroin	§	§	§	§	§	§	§	§	.1	.0	.0	.0	.0	.0	.0	.0
Other Opiates‡	2	2	3	2	2	2	2	2	.1	.1	.2	.1	.0	.1	.1	.1
Stimulants‡	9	8	9	9	10	12	16	14	.5	.4	.5	.5	.6	.7	1.2	1.1
Stimulants Adjusted‡¶	NA	NA	NA	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	.7
Sedatives‡	5	5	5	4	4	5	5	3	.3	.2	.2	.2	.1	.2	.2	.2
Barbiturates‡	5	4	4	3	3	3	3	2	.1	.1	.2	.1	.0	.1	.1	.1
Methaqualone‡	2	2	2	2	2	3	3	2	.0	.0	.0	.0	.0	.1	.1	.1
Tranquilizers‡	4	4	5	3	4	3	3	2	.1	.2	3	.1	.1	.1	.1	.1
Alcohol	68	68	71	72	72	72	71	70	5.7	5.6	6.1	5.7	6.9	6.0	6.0	5.7
Cigarettes	37	39	38	37	34	31	29	30	26.9	28.8	28.8	27.5	25.4	21.3	20.3	21.1

* Adjusted for underreporting of amyl and butyl nitrites.

† Adjusted for underreporting of PCP.

‡ Only drug use which is not prescribed by a physician.

¶ Adjusted for overreporting of nonprescription stimulants.

§ Less than 0.5 percent.

NA: Not available.

Note: Daily use: cigarettes—smoked one or more per day; all other drugs—used on 20 or more occasions in the preceding 30 days.

Source of basic data: *Student Drug Use in America: 1975-1982*, National Institute on Drug Abuse.

same level through 1981 but dropped slightly in 1982. Cocaine use more than doubled between 1975 and 1981, but declined slightly for the first time in 1982, dropping from 12.4 percent to 11.5 percent. The sharp rise in recreational use of stimulants—from 18 percent in 1979 to 26 percent in 1981—seems to have halted in 1982. However, the use of diet pills by female seniors is still particularly high.

With regard to the two licit drugs, the annual prevalence of alcohol use has remained about the same since 1975, continuing at high levels.

Table 2
First Drug Use
High School Seniors, Class of 1982

Type of Drug	Grade in Which Drug Was First Used 6th	7th-8th	9th	10th	11th	12th	Never Used
Marijuana	2.7%	15.4%	16.9%	11.9%	7.9%	4.0%	41.3%
Inhalants*	2.1	3.4	2.3	2.6	.9	1.5	87.2
Amyl and Butyl Nitrites	.1	1.6	2.7	2.3	2.3	.8	90.2
Hallucinogens*	.1	.8	2.7	3.7	3.4	1.8	87.5
LSD	.1	.5	2.0	2.9	2.6	1.4	90.4
PCP	.2	1.0	1.2	1.7	1.0	.9	94.0
Cocaine	.1	.5	1.8	3.9	5.4	4.3	84.0
Heroin	.0	.2	.3	.2	.3	.2	98.8
Other opiates	.4	.6	1.7	2.5	2.3	2.1	90.4
Stimulants†	.1	1.6	5.9	8.1	8.4	3.6	72.1
Sedatives	.3	1.0	3.2	4.4	4.1	2.2	84.4
Barbiturates	.2	.7	2.6	3.7	2.2	.9	89.7
Methaqualone	.0	.5	1.9	3.2	3.2	1.9	89.3
Tranquilizers	.6	1.0	2.6	3.9	3.9	2.0	86.0
Alcohol	9.4	21.4	24.9	18.0	12.9	6.1	7.2
Cigarettes (Daily)	3.0	7.1	5.3	4.2	3.2	1.7	75.4

*Unadjusted for known underreporting of certain drugs.
†Adjusted for underreporting of nonprescription stimulants.
Source of basic data: *Student Drug Use in America: 1975-1982*, National Institute on Drug Abuse

Daily use of alcohol remained at the same level in 1982 as in 1975 (5.7 percent). The rate of occasional binge drinking, however, rose slightly; 37 percent of the class of 1975 said that on at least one occasion during the previous two weeks they had taken five or more drinks in a row, while 41 percent of the class of 1982 reported binge drinking. The dramatic downturn between 1977 and 1980 in cigarette use by this age group appeared to be decelerating in 1981. Daily smoking dropped from 29 percent in 1976 to 20 percent in 1981, but rose slightly to 21 percent in 1982.

Early Use of Drugs

Significant proportions of drug users in the class of 1982 were initiated into *illicit* drug use prior to the 10th grade. As indicated in Table 2, about three out of five of the marijuana users and the inhalant users had their first experience with these drugs between the 6th and 9th grades, when they were 11 to 14 years of age. Heroin and PCP were also used at a relatively early age; about two out of five users started before the 10th grade. In the case of most of the other illicit drugs, between one-fifth and one-third of the users were introduced to drugs before grade 10. Initial use of cocaine, however, usually took place in the last two years of high school. Experimentation with alcohol and cigarettes usually started prior to the 10th grade. About 56 percent of the seniors started drinking before they reached the 10th grade, while 37 percent started

> "About two-thirds of all young people try an illicit drug before they finish high school."

Table 3
Trends in Drug Use by Youths 12-17 Years of Age 1972-1982

Type of Drug	Used Once or More in Lifetime Percent				Used Once or More in Past 12 Months Percent				Used Once or More in Past 30 Days Percent			
	1972	1976	1979	1982	1972	1976	1979	1982	1972	1976	1979	1982
Marijuana	14	22	31	27	NA	18	24	21	7	12	17	12
Hallucinogens	5	5	7	5	4	3	5	4	1	1	2	1
Cocaine	2	3	5	7	2	2	4	4	1	1	1	2
Heroin	1	1	1	*	*	*	*	*	*	*	*	*
Nonmedical Use of:												
Stimulants	4	4	3	7	NA	2	3	6	NA	1	1	3
Sedatives	3	3	3	6	NA	1	2	4	NA	NA	1	1
Tranquilizers	3	3	4	5	NA	2	3	3	NA	1	1	1
Analgesics	NA	NA	3	4	NA	NA	2	4	NA	NA	1	1
Any Nonmedical Use	NA	NA	7	10	NA	NA	6	8	NA	NA	2	4
Alcohol	NA	54	70	65	NA	49	54	47	NA	32	37	27
Cigarettes	NA	46	54	50	NA	NA	13	14	NA	23	12	15

*Less than 0.5 percent.

NA Not available.

Source of basic data: *National Household Survey on Drug Abuse, 1982.* National Institute on Drug Abuse.

during the last three years of high school. Of *daily* cigarette smokers, about 15 percent started smoking before the 10th grade and about 9 percent started in grades 10, 11, or 12.

The early ages at which the 1982 high school seniors began using drugs is particularly disturbing and indicates the need for education on the dangers of drug abuse and the implementation of preventive programs for young children. Additional data on the current prevalence and recent trends in drug use among young children are available from *The National Household Survey on Drug Abuse.*[3] This series of surveys of American households has been conducted every two or three years since 1971 in order to assess the use of licit and illicit drugs for nonmedical purposes by the general population aged 12 years and older. The surveys are conducted for the National Institute on Drug Abuse by the Social Research Group at George Washington University. The 1982 study involved 5,624 persons, of which 1,581 were 12-17 years of age.

As shown in Table 3, in 1982 more than one-fourth (27 percent) of children aged 12-17 reported that they had tried marijuana at some time during their lifetime, and about one-eighth (12 percent) reported current use (used in the previous month). These figures represent a reversal of the pattern found in earlier surveys during the 1970s, when successive youth cohorts reported increasing experience with marijuana.

The 1982 survey confirms the correlation between age and marijuana use that was seen during the 1970s. In 1982, about one out of every 10 children aged 12-13, one out of four children aged 14-15, and about half of those 16-17 years of age had used marijuana.

> "Illicit drug use by the class of 1982 was highest in the large metropolitan areas, slightly lower in other cities, and lowest in non-metropolitan areas."

The use of hallucinogens among children aged 12-17 dropped slightly from the peak level of 7 percent in 1979 to 5 percent in 1982. On the other hand, the use of cocaine rose from 5 percent in 1979 to 7 percent in 1982. Between 1979 and 1982 there was an increase (from 7 to 10 percent) in the lifetime prevalence of nonmedical use of stimulants, sedatives, tranquilizers, and analgesics combined, as well as an increase of 1 to 3 percent in the current use of stimulants. To some extent these increases may be attributed to differences in reporting conditions. In earlier surveys, questions on nonmedical use of these drugs were answered aloud in "open interview" fashion, while in the 1982 survey, respondents used private answer sheets comparable to those for other types of recreational drugs.

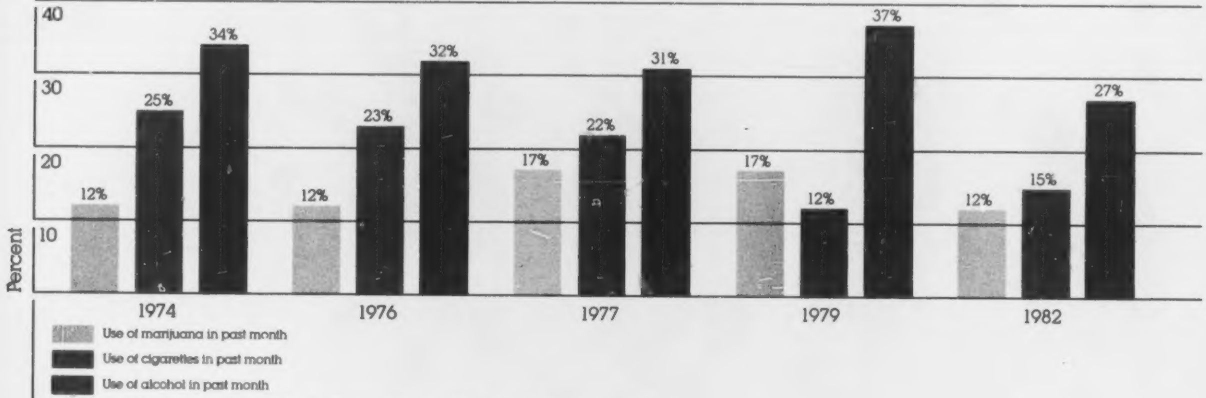
In 1982 it was found that when the nonmedical use of psychotherapeutic drugs is combined in a single index with the use of hallucinogens, cocaine, and heroin, about 14 percent of all children 12-17 years of age had experience with at least one illicit substance other than marijuana (up from about 9 percent during the 1970s); 10 percent reported use of one or more of these "stronger" drugs during the previous 12 months.

Among children aged 12-17, the proportion of current alcohol users dropped from 37 percent in 1979 to 27 percent in 1982. Current cigarette use in this age group increased slightly from 12 percent in 1979 to 15 percent in 1982. A comparison of the current use of marijuana, cigarettes, and alcohol among children 12-17 years of age in selected years is presented in Figure C.

Preventive Measures

Combating the drug abuse problem must go far beyond the monitoring and reporting of trends in drug use. Survey statistics are at best *conservative* estimates of substance use among adolescents. Surveys based on self-reported data can vary widely from actual behavior, and the exclusion of school dropouts could well result in an underestimation of the alcohol and drug problems among young people. Despite these

Figure C–Current Use of Marijuana, Cigarettes, and Alcohol
Ages 12-17, 1974-1982



Source of basic data: National Household Survey on Drug Abuse, 1982, National Institute on Drug Abuse.

limitations, the level of substance use among adolescents, as revealed in these surveys, clearly indicates the need for education and preventive measures among children of school age. Metropolitan, in recognition of this need and continuing its long history of social commitment, has become actively involved in this effort. Grants from the Metropolitan Life Foundation and from the Richard King Mellon Foundation funded THE CHEMICAL PEOPLE—a community outreach campaign to curb alcohol and drug abuse among children through education, intervention, prevention, and treatment. Concerned parents and citizens attended town meetings across the nation to view a two-part series on public television on November 2 and 9, 1983. These programs discussed the scope of substance abuse by today's youth and presented guidelines for the formation of community task forces to explore local school-age drug abuse problems and to seek possible solutions. For further information about this continuing nationwide outreach program, write to the Editor of the *Statistical Bulletin*.

An article in the next issue of the *Statistical Bulletin* will explore attitudes, perceptions, and beliefs among children and young people about the dangers of drug abuse.

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[1] *Student Drug Use in America: 1975-1982.* National Institute on Drug Abuse, 1983.

[2] Unpublished data from the Laboratory of Epidemiology and Population Studies, National Institute on Alcohol Abuse and Alcoholism (NIAAA), 1983.

[3] *National Household Survey on Drug Abuse, 1982.* National Institute on Drug Abuse, 1983.

CAPSULE BRIEFS

Capsule Briefs are timely selections from the literature that Statistical Bulletin thinks will have broad reader interest.

Pre-retirement Planning Leads to Happier Retirees.

Everyone who nears retirement harbors some dreams about what life will be like then. However, what works best is specific, realistic preparation, which is individually centered, for each prospective retiree. When it is done properly, according to pre-retirement consultants, the results are happy retirees who make fewer demands on the time of the company's pension directors. Besides financial needs, retirees must be prepared to meet their emotional, psychological, and spiritual needs. Because retirement is a major life change, it is perceived as stressful. (S. J. Drury, *Business Insurance* 17(41):64-68, 1983)

Detecting Marijuana by Urine Testing.

Now new technology makes possible the simple, rapid detection of a unique marijuana smoke metabolite that is not produced by tobacco or other plants. While a blood test is more accurate, this new test is less expensive and reliable. A positive result, however, by this new test indicates only the likelihood of prior use. Precise measurement is affected by slow release after accumulation in body fat, as well as urine volume changes due to diet, exercise, and age. Smoking a single marijuana cigarette, however, produces metabolite urine levels detectable for several days. Passive inhalation apparently does *not* produce a positive test. (Anon. *Morbidity and Mortality Weekly Report* 32(36):469-471, 1983)

Get Me to the Clinic on Time.

Doctors and clinics get frustrated when patients fail to show for appointments. The orderly flow of procedures can break down, high costs can result. To solve this problem, an experiment was undertaken. Persons with clinic appointments were randomized into 3 groups: phone, letter reminders, and no reminders. No-show rate was reduced from 24 percent to 14 percent by phone calls and letters, equally effectively. The authors, in an economic analysis, concluded that in large clinics a 5 percent, or greater, decrease in no-shows yielded savings to pay for their reminder program. "Some physicians of medical centers feel it is not worth their while to send out appointment reminders because of the expense," says Dr. Judy Ann Bigby of Boston's Brigham and Women's Hospital. "By having patients keep appointments, they are actually avoiding losing revenue." It may also eliminate the practice of overbooking appointments to allow for no-shows. Patients who keep appointments would have shorter waits. (J. Bigby, et al, *JAMA* 250 (13):1742-1745, 1983)

What do Workers Think About Toxic Substances?

In the tumult about chemical hazards to employees, scant attention has been given their views. Nelkin described a pessimistic picture of workers' opinions, feelings, and attitudes about the risks with which they may work. In interviews, they told her of feeling isolated, anxious, reluctant to discuss their health, and afraid that complaining could jeopardize their jobs. They felt embarrassed to talk about problems like sterility, cancer, or nervous disorders. Many dismissed their problems as personal, and denied a health risk. They did, however, want a voice in decisions that affect their health. (D. Nelkin, *Science* 222(4620):125, 1983)

Who's Afraid of the Doctor?

It would appear that iatrophobia (fear of doctors) is more common than previously appreciated. Using an intra-arterial blood pressure measure to determine changes in 48 subjects, a team of Italian investigators found that systolic and diastolic values rose an average 27mm Hg and 15mm Hg, respectively, when the doctor arrived at the patient's bedside. Heart rate also had average increase of 16 per minute. The peak response declined (after four minutes) to near prearrival levels, but increased once again on a second visit. (G. Mancia, et al, *Lancet* 2(8352):695-698, 1983)

Does "Binge" Drinking Cause Strokes?

Long considered a cardinal sign of harmful involvement with alcohol, "binge" drinking as a likely contributor to the cause of strokes is reviewed in this editorial. Recent Finnish studies, as well as one in the United States, have shown an association. While the precise biological mechanism by which alcohol might cause strokes has not been clarified, a sufficiency of possible pathways exist to make the relationship clinically tenable. (Editorial, *Lancet* 2(8351):660-661, 1983)

Mothers of the World: Stop Smoking.

In a careful, seven year study, a Harvard research team showed that children of mothers who smoke develop significantly decreased lung function. These results were independent of children's growth patterns and their later personal smoking habits. The investigators concluded that "maternal smoking contributes to reduced development of lung function, and may be important in eventual development of chronic obstructive airway disease (emphysema) in adult life." (I. B. Tager, et al, *New England Journal of Medicine* 309 (12):699-703, 1983)

UNITED STATES POPULATION OUTLOOK

The population of the United States (including the Armed Forces overseas) is expected to increase from 227.7 million in July 1980 to 268 million in the year 2000 and may reach 309 million by 2050. This represents an increase of 17.7 percent between 1980 and 2000 and of 15.2 percent in the 50 years thereafter. Within the next 20 years the nation's population will rise by about 40 million; it will take an additional half century, however, to achieve another population increase of such magnitude.

The overall population outlook for the United States calls for continued growth during the 1980-2050 period, although the relative population gains in each succeeding decade will become progressively smaller. It is likely that the national population will reach a peak in 2050. Population estimates and projections for the period 1970-2050, which are presented in the accompanying table, provide some indication of the size and age distribution of the population of the future.

Senior Citizens—Rapid Growth

During the next 70 years, there will be significant changes in the age composition of the United States population. Senior citizens will constitute the fastest growing segment of the population, as can be seen from the figure on page 19, which illustrates the trend in the proportionate distribution of the population between 1900 and 2050. In 1900, people 65 years of age or older comprised just 4 percent of the total population; by 1930 this proportion was about 5 percent, and gradually increased to the current 11 percent. According to population projections, however, those aged 65 or older will make up 13 percent of the population in 2000, 17 percent in 2020, and 22 percent in 2050. The population at these older ages is expected to rise from 25.7 million in 1980 to 67 million in 2050, an increase of 161 percent. The unprecedented increase in the size of the older population of the United States has occasioned a great deal of comment regarding the social and economic implications of such a rapid expansion of this group. Of major concern is the financial stability of the Social Security system and its ability to cope with the demands made upon it by such a large group of retirees.

> "Population of the U.S. may exceed 300 million by the year 2050."

The outlook for the population under 25 years of age is quite different from that predicted for the elderly. Young people in this age group are likely to constitute a continually smaller proportion of the population in each decade between 1970 and 2050. In fact, the only time since 1900 that there has been an increase in the relative size of this population grouping occurred during the 1950-1970 period. The baby boom that followed World War II accounted for that significant increase in the under age 25 population.

At the beginning of the 20th century there were 41 million persons under age 25 in the United States, comprising more than half of the total population. Although their numbers rose steadily, reaching 58.5 million in 1930, the relative size of the group gradually diminished. By 1950 the proportion of the population under age 25 had declined to 41.6 percent. However, the large number of births in the postwar years was responsible for a sharp increase in the number of persons in this age group—from 63.4 million in 1950 to 80.7 million in 1960 and to 94.5 million in 1970. Since 1970, when the number of persons under age 25 constituted 46.1 percent of the population, the size of this population group has decreased and is expected to continue declining—from 41.3 percent of the population in 1980 to 29.3 in 2050. Despite this gradual decline, those under age 25 will still constitute the largest proportion of the United States population in 2050.

> "During the next 70 years, people 65 years and over will be the fastest-growing segment of the population."

The second fastest growing segment of the United States population—the 45-64 age group—is expected to increase by two-thirds, from 44.5 million in 1980 to 74.2 million in 2050. The growth pattern for this middle-aged group has been somewhat similar to that for senior citizens. The population aged 45-64 rose from 14 percent of the total population in 1900 to 20 percent in 1940 and remained at this plateau until 1980.

Population of the United States,* 1970-2050

Year As of July 1	All Ages	Ages Under 25	Ages 25-44	Ages 45-64	Ages 65 and Over
Numbers in Thousands					
1970	205,052	94,473	48,473	41,999	20,107
1980	227,658	93,998	63,465	44,487	25,708
1990	249,731	90,099	81,352	46,481	31,799
2000	267,990	91,976	80,105	60,873	35,036
2025	301,022	91,799	78,253	72,334	58,636
2050	308,856	90,457	77,142	74,197	67,060
Age Distribution†					
1970	100.0%	46.1%	23.6%	20.5%	9.8%
1980	100.0	41.3	27.9	19.5	11.3
1990	100.0	36.1	32.6	18.6	12.7
2000	100.0	34.3	29.9	22.7	13.1
2025	100.0	30.5	26.0	24.0	19.5
2050	100.0	29.3	25.0	24.0	21.7
Percent Change					
1970-1980	11.0%	−0.5%	30.9%	5.9%	27.9%
1980-1990	9.7	−4.1	28.2	4.5	23.7
1990-2000	7.3	2.1	−1.5	31.0	10.2
2000-2025	12.3	− .2	−2.3	18.8	67.4
2025-2050	2.6	−1.5	−1.4	2.6	14.4
1980-2000	17.7	−2.2	26.2	36.8	36.3
1980-2050	35.7	−3.8	21.6	66.8	160.9
Females per 100 Males					
1970	104.3	96.8	103.2	109.1	139.0
1980	105.4	96.4	101.8	110.3	148.1
1990	105.5	95.8	100.4	109.1	151.3
2000	105.5	95.6	99.3	106.8	155.1
2025	106.0	95.6	98.4	103.6	142.2
2050	107.6	95.6	98.4	102.8	148.0

*Including Armed Forces overseas.

†Percent of total population.

Source of basic data: Bureau of the Census, *Current Population Reports*, Series P-25, Nos. 917 and 922.

Although a slight decrease in this proportion (to 18.6 percent) is expected by 1990, the number of persons in this age category will increase by about two million in the 10-year span. With the aging of the baby-boom generation, the population aged 45-64 is expected to rise sharply—reaching 60.9 million in 2000 and 77.7 million in 2010. At this point, middle-aged adults will comprise more than 27 percent of the total population. With some fluctuation after 2010, the relative size of this age group will level off at approximately one-quarter of the population.

The size of the population aged 25-44 will vary within a relatively narrow range during the 1980-2050 period. In the first half of this century persons aged 25-44 comprised about 30 percent of the total population, but the proportion fell to about 24 percent between 1950 and 1970.

"Young people under age 25 will become a smaller segment of the population."

Although increasing at present, the size of the age group is expected to peak at 33 percent of the population in 1990 before leveling off at approximately 25 percent in later years. By 2050 there may very well be 77.1 million people aged 25-44 —an increase of 22 percent in the 1980-2050 period.

Sex Ratio

The sex ratio of the population is also expected to undergo significant change in the future. Females have outnumbered males since 1950 and the disparity is likely to continue widening. By 2050 it is expected that there will be nearly 8 percent more women than men in the United States. As shown in the bottom tier of the table, there is also likely to be considerable variation in the sex ratios for the major age groups. At ages under 25 there are more men than women. At ages 25-44, women currently outnumber men, but it is expected that there will be equal numbers of each sex by 1990. Population projections also indicate that more men will survive to midlife and later, with the result that the sex differential in favor of women at ages 45-64 will decrease. Relatively little change is expected at ages 65 and over, where the ratio is currently about 150 females per 100 males. The sex ratio may fluctuate to some degree in the next 70 years, but will be at virtually the same high level in 2050 as that which prevailed in 1980.

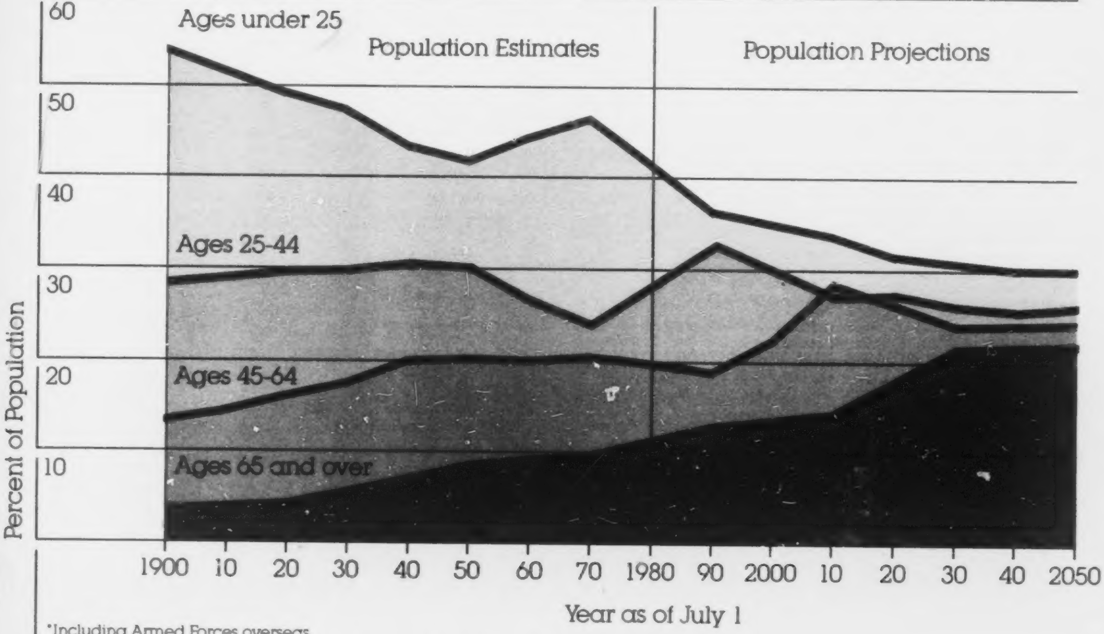
"By 2050 there will be nearly 8 percent more women than men."

Outlook and Assumptions

Despite the divergent trends in the major population groups, there will be a tremendous convergence in their relative size in the 21st century. By 2050 the four major age groups will each constitute roughly one-quarter of the nation's population—with proportions ranging between 22 and 29 percent.

Population projections are based on assumptions as to fertility, mortality, and immigration trends of the future. Because such estimates are subject to substantial variation—some of the underlying assumptions can be affected by unforeseen events—caution must be exercised in using the figures. Intrinsic to the projections is the assumption that the number of births will climb to almost four million per year in the late 1980s

Trend in Age Distribution of United States Population,* 1900-2050



*Including Armed Forces overseas.
Source of basic data: Various reports and unpublished data of the Bureau of the Census

and then diminish. Other assumptions include a constant net immigration of 450,000 persons each year, and a slow improvement in mortality, with life expectancy at birth in 2050 reaching almost 84 years for females and slightly more than 75 years for males.*

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*See article on current life expectancy in Jan-June 1983 issue of the *Statistical Bulletin*

MEASUREMENT OF OVERWEIGHT

The concepts of obesity and overweight are often confused. Though sometimes used interchangeably, the term obesity usually indicates excess body fat while overweight denotes excess weight. Obesity can be determined by several types of skinfold measurements, or by tests in laboratories with special equipment designed to make complicated body density determinations. However, when skinfold measurements are not available, obesity is most often defined in terms of overweight because of the simplicity of this method.

Height and Weight Indices

Several different measures have been devised to determine the degree of overweight. One measure that is often used is relative weight in which actual weight is expressed as a proportion or percentage of a standard table of weights—Metropolitan Life's height and weight tables being a recognized standard. Also commonly used are various indices of height and weight, such as:

W/H (weight divided by height)

W/H^2 (weight divided by height squared—known as the Body Mass Index or the Quetelet Index)

W/H^3 (weight divided by height cubed—the Rohrer Index)

H^3/W (height cubed divided by weight)

$W^{1/3}/H$ (cube root of weight divided by height—the Ponderal Index)

$H/W^{1/3}$ (height divided by cube root of weight—the Sheldon inversion of the Ponderal Index).

To be of value, an index should be highly correlated with weight or other measurements of adiposity and be independent of height. Studies[1-8] have generally found that W/H^2 best fits the criteria—this index is highly correlated with more direct measures of body fat and has a very low correlation with height. Recently $W/H^{1.5}$ (weight divided by height raised to the power of 1.5 instead of 2) has been suggested by the National Center for Health Statistics[9] as more appropriate for women. While these indices cannot distinguish between variations in muscularity and bone structure, the measurements can be made easily and quite accurately.

Body Mass Index Values

Table 1 presents body mass index values for men (using formula W/H^2) based on the 1959 and 1983 Metropolitan Height and Weight Tables,[10,11] which have been adjusted to a nude basis. Corresponding values for women are also presented, using body mass indices of W/H^2 in Table 2 and $W/H^{1.5}$ in Table 3.

For men of small frame the body mass index ranges from 20-21 for tall men to 23-24 for short men, based on the 1983 table, compared with indices of 20-21 for men at most heights in the 1959 table. Among men of medium frame the corresponding figures varied from 21-23 among tall men to 24-26 for short men in 1983, while the values in 1959 hovered at 21-23. For men of large frame the indices ranged from 22-25 for tall men to 25-27 for short men in 1983, and remained at the 22-25 level for men of all heights in 1959. According to Garrow,[12] Olympic sprinters have a body mass index of about 23 and marathon runners a body mass index of about 20.

> "Several different measures have been devised to determine the degree of overweight."

Table 1—Body Mass Index (W/H²)* Values for Men

Based on Weights (Without Clothing) with Lowest Mortality
Ages 25-59

Height (Without Shoes)		1959 Weight Table			1983 Weight Table		
Feet	Inches	Small Frame	Medium Frame	Large Frame	Small Frame	Medium Frame	Large Frame
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	2	20-21	21-23	22-25	23-24	23-25	25-27
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	4	20-21	21-23	22-25	22-23	23-25	24-27
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	6	20-21	20-23	22-25	21-23	22-24	23-26
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	8	20-21	21-23	22-25	21-22	22-24	23-26
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	10	20-21	21-23	22-25	20-22	21-23	22-26
5	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	0	20-21	20-23	22-25	20-22	21-23	22-25
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	2	20-21	21-23	22-25	20-21	21-23	22-25
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* Body Mass Index = Weight/Height²; weight in kilograms, height in meters.

Source of basic data: 1959 and 1983 Metropolitan Height and Weight Tables.

Table 2—Body Mass Index (W/H²)* Values for Women

Based on Weights (Without Clothing) with Lowest Mortality
Ages 25-59

Height (Without Shoes)		1959 Weight Table			1983 Weight Table		
Feet	Inches	Small Frame	Medium Frame	Large Frame	Small Frame	Medium Frame	Large Frame
4	9	19-21	20-23	22-26	21-23	[illegible]	[illegible]
4	10	19-21	20-23	22-25	21-23	23-25	24-27
4	11	19-21	20-23	22-25	20-23	[illegible]	[illegible]
5	0	19-21	20-22	22-25	20-22	22-25	24-27
5	1	19-21	20-22	22-25	20-22	[illegible]	[illegible]
5	2	19-20	20-22	21-25	20-22	22-24	23-26
5	3	19-20	20-22	21-24	20-22	[illegible]	[illegible]
5	4	19-20	20-22	21-24	20-22	21-24	23-26
5	5	19-20	20-22	21-24	19-22	[illegible]	[illegible]
5	6	19-20	20-22	21-24	19-21	21-23	23-26
5	7	19-21	20-22	21-24	19-21	[illegible]	[illegible]
5	8	19-21	20-22	21-24	19-21	21-23	22-25
5	9	19-21	20-22	21-24	19-21	[illegible]	[illegible]
5	10	19-21	20-22	21-24	19-21	20-22	22-25

*Body Mass Index = Weight/Height²; weight in kilograms, height in meters.

Source of basic data: 1959 and 1983 Metropolitan Height and Weight Tables.

Table 3—Body Mass Index ($W/H^{1.5}$)* Values for Women

Based on Weights (Without Clothing) with Lowest Mortality
Ages 25-59

Height (Without Shoes)		1959 Weight Table			1983 Weight Table		
Feet	Inches	Small Frame	Medium Frame	Large Frame	Small Frame	Medium Frame	Large Frame
4	9	[illegible]	[illegible]	27-31	26-28	27-31	30-33
4	10	23-25	25-28	27-31	25-28	27-30	30-33
4	11	[illegible]	[illegible]	27-31	25-28	27-30	29-33
5	0	24-26	25-28	27-31	25-28	27-30	29-33
5	1	[illegible]	[illegible]	27-31	25-28	27-30	29-33
5	2	24-26	25-28	27-31	25-28	27-30	29-33
5	3	[illegible]	[illegible]	27-31	25-28	27-30	29-33
5	4	24-26	25-29	27-31	25-28	27-30	29-33
5	5	[illegible]	[illegible]	28-31	25-28	27-30	29-33
5	6	25-27	26-29	28-31	25-[illegible]	27-30	29-33
5	7	[illegible]	[illegible]	28-31	25-28	27-30	29-34
5	8	25-27	26-29	28-32	25-28	27-30	29-33
5	9	[illegible]	27-30	28-32	25-28	27-30	29-33
5	10	26-28	27-30	29-32	25-28	27-30	29-33

*Body Mass Index = $\text{Weight}/\text{Height}^{1.5}$; weight in kilograms, height in meters.

Source of basic data: 1959 and 1983 Metropolitan Height and Weight Tables.

> "Metropolitan's height and weight tables are based on the principle of lowest mortality."

Using a body mass index based on W/H^2, the indices among women of small frame varied from 19-21 for tall women to 21-23 for short women in 1983, compared with indices of 19-21 for both tall and short women and of 19-20 for women of middle height in 1959. Among women of medium frame, the values ranged from 20-22 for tall women to 23-26 for short women in 1983, compared with corresponding values that varied from 20-22 to 20-23 in 1959. For women of large frame the indices varied from 22-25 for tall women to 25-28 for short women in 1983 and from 21-24 to 22-26 in 1959. Indices calculated by the formula $W/H^{1.5}$ are proportionately higher.

The range of body mass indices based on the 1983 Metropolitan Height and Weight Tables (presented in this article) corresponds in general with the range embraced by the fifth to the 67th percentile of the indices for men (W/H^2) and the 10th to the 65th percentile of the indices for women ($W/H^{1.5}$) in the United States population, as computed by the National Center for Health

Table 4—Mortality Ratios According to Range of Weights in 1983 Metropolitan Height and Weight Tables

Height (In Shoes)*	Range of Weights † (In Indoor Clothing) ‡	Mortality Ratio Weight Below Range	 Weight Within Range	 Weight Above Range
[illegible]				
5'2"	128-150	114%	106%	125%
5'3" -5'6"	130-164	115	100	108
5'7" -5'10"	138-180	114	97	111
5'11"-6'2"	145-197	115	96	114
6'3"- -6'4"	158-207	98	94	119
[illegible]				
4'10"	102-131	197%	104%	116%
4'11"-5'2"	103-143	144	95	101
5'3" -5'6"	111-159	127	99	104
5'7" -5'10"	123-173	145	102	109
5'11"-6'0"	135-179	¶	134	365

*Shoes with 1-inch (2.50 centimeters) heels for both men and women.

†From 1983 Metropolitan Height and Weight Tables.

‡Indoor clothing 5 pounds (2.3 kilograms) for men and 3 pounds (1.4 kilograms) for women.

¶Ratio not computed; fewer than 10 deaths.

Statistics. In the population group, about 5 percent of the men have lower indices and 33 percent have higher indices than the insured group, while almost 10 percent of the women in the population group have lower indices and 35 percent have higher indices than the insured group.

Metropolitan Height and Weight Tables

Metropolitan's height and weight tables are based on the principle of lowest mortality. Therefore, the mortality among individuals with weights for height either above or below the table weights can be expected to be higher than the mortality among those whose weights fall within the table limits. This is the case for both men and women, based on grouped data shown in Table 4. The mortality ratio is defined as the ratio of the actual deaths for a particular height and weight group to the expected deaths among policyholders insured under standard policies—based on the experience in the *Build Study, 1979*.[13]

The 1983 Metropolitan Height and Weight Tables are based on life insurance policy data that do not include information on smoking. However, other studies have noted that the weights at which mortality is lowest are different for smokers and nonsmokers. Data from the Framingham Study[14] and from the American Cancer Society[15] indicate that the weights associated with lowest mortality fall below average weights for both smokers and nonsmokers, but are somewhat lower for the nonsmokers.

Frederic Seltzer, a Fellow of the Society of Actuaries, is Assistant Actuary, Metropolitan Life Insurance Company

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- How Children and Adolescents Feel About Alcohol and Other Drug Abuse
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- Current Life Expectancy of Men and Women in the U.S.
- Boating Accidents: Circumstances Associated With Fatalities
- Mortality From Heart Disease: Significant Geographic Variations
- Drugs Prescribed in Physicians' Offices for Specific Conditions

HISTORICAL PERSPECTIVES

25 YEARS AGO

IN THE **1959** STATISTICAL BULLETIN

Metropolitan published new standards of desirable weight by height and type of frame. The data were based on results of the Society of Actuaries 1959 Build and Blood Pressure Study. Findings clearly showed that the lowest mortality generally occurred among people who were well below average weight. Control of body weight was vital to health and longevity. Health education on nutrition, particularly in the schools, needed to be reoriented to emphasize the necessity for caloric balance in the diet. Regular exercise was also encouraged. *(Page 1, November-December)*

Another unexpected rise in the number of cases of poliomyelitis was reported. In 1955 the Salk vaccine was introduced and, in the following two years, the incidence of poliomyelitis dropped precipitously. However, beginning in 1958 there was a resurgence in the number of cases. The rise was attributed to the failure of large segments of the population to avail themselves of the vaccine. *(Page 1, September)*

The resident population of the United States was projected to exceed 208 million in July 1970 (official total was 203,984,000—ed.). Vigorous growth in the near future was expected because it was anticipated that the large number of births during the immediately preceding years would continue at a high level. Marked differences in the pattern of geographic increases were expected (and did occur—ed.). *(Page 1, June)*

Metropolitan celebrated the beginning of its 40th year of publishing the Statistical Bulletin and the 50th anniversary of the establishment of its Health and Safety Education Division. Over the years the broadly conceived programs encompassed many major health problems, focusing activities on changing needs of the times. The programs, designed primarily to promote the health of the Company's policyholders in the United States and Canada, benefited the entire population of the two countries. *(Page 1, January)*

A 30-year study of floods disclosed that 2,430 people lost their lives. The Ohio Valley experienced a larger loss of life from floods than any other area, accounting for nearly one-fourth of all victims. On the other hand, flood deaths were rare or infrequent in the U.S. Weather Bureau's Great Basin (mainly Nevada), East Gulf, Colorado, and Great Lakes Districts. *(Page 8, March)*

A study of the reports on occupational mortality by the Registrar General of England and Wales reaffirmed that people in the higher social classes, as indicated by occupation, had appreciably lower mortality than persons at the lower end of the social scale. Differences in mortality among men reflected largely the social and economic factors associated with their standard of living and only to a limited extent the specific hazards of their occupations. The pattern of mortality among the women was very similar to that of the men. *(Page 9, October)*

Metropolitan paid out over half a billion dollars in death claims in the last year—three times the amount disbursed 20 years earlier. Payments on account of deaths from cardiovascular-renal diseases totaled over $276,000,000 and, from cancer, more than $100,000,000—together accounting for three-fourths of all payments to beneficiaries. *(Page 5, April)*

APR/
JUNE
1984

SB
STATISTICAL BULLETIN

Vol 65 No 2 Apr-Jun 1984

2 **Recreational Boating Fatalities: 1978-82.** Plus an editorial by the U.S. Coast Guard Commandant that describes the federal responsibilities for boating safety.

8 **Projections of Population Growth at Older Ages.** And a related editorial by Karen Davis, Johns Hopkins University, who comments on the implications of Aging for the nation's health care financing.

16 **How Children Perceive Alcohol/Drug Abuse.** Youngsters' attitudes may reveal clues to combating alcohol and drug abuse.

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Published four times a year by Metropolitan Life Insurance Company. John J. Creedon, President and Chief Executive Officer; Robert Schwartz, Chairman; Harry Kamen, Senior Vice-President and Secretary; Arthur G. Typermass, Senior Vice-President and Treasurer. Printed in U.S.A.

Subscriptions: U.S., its territories and Canada, $50 for one year (U.S. currency). Outside U.S. and Canada add $10 for postage.
Send to: Statistical Bulletin, Metropolitan Life Insurance Company,
One Madison Avenue, New York, N.Y. 10010

Postage paid at New York, N.Y. Postmaster: send address changes to above address.

Letters will be published at the discretion of the editor as space permits and subject to editing and abridgment. They should be typewritten double-spaced. Send to:
Statistical Bulletin, 16UV
Metropolitan Life Insurance Company
One Madison Avenue, New York, N.Y. 10010

From the Editor's Desk

For the next 65 years, retirement-age Americans are expected to be the United States' most rapidly growing population group. As SB describes (page 8), the implications of their growth are a remarkable subject when one considers the likely social impact. Particularly noteworthy is the anticipated increase in the numbers of persons 85 years and older, whose presence will mean, for example, that, as many persons enter retirement, they may also be caring for aged parents.

As Karen Davis of Johns Hopkins University explains in her related editorial, a proportionately larger elderly population will mean greater medical care cost problems for the United States during the next 50 years.

On a sunnier note, are you already anticipating summer? For nearly 60 million Americans, summer sun suggests a boating trip. There is, however, an unfortunate side to this recreational boating story: accidents. In this issue, SB examines the demography of accidental boating deaths in the United States during the period 1978-82.

In a related editorial, James Gracey, Commandant of the U.S. Coast Guard, describes the federal program for the prevention of many recreational boating accidents. In a time of changing definitions for various federal responsibilities, he explains the Coast Guard's program, including its varied coordinating efforts to reduce our national boating accident problem.

Teenagers' perceptions about drug abuse are the focus of the second of a two-part series on youth and substance abuse prompted by the television program, THE CHEMICAL PEOPLE. Are you surprised, for example, that half the fourth graders surveyed believed that *some* of their friends have used alcohol already? Or, that over half the eighth grade students believed that *most* of their friends have used alcohol? These and comparable data are regarded by most observers as a clarion call for widespread local action. We hope that effective programs result from them.

Charles B Arnold

Contents

1 From the Editor's Desk

2 Recreational Boating Fatalities

7 The Federal Role in Recreational Boating Safety
James S. Gracey, Admiral/U.S. Coast Guard Commandant

8 Projections of Population Growth at the Older Ages

13 The Medical Care Challenge of an Aging Population
Karen Davis, Ph.D./Johns Hopkins University

14 Capsule Briefs

16 How Children and Adolescents Perceive Alcohol and Other Drug Abuse

22 Accident Death Toll: 1983

24 Health and Safety Education Materials

Back Cover/Historical Perspectives

RECREATIONAL BOATING FATALITIES: 1978-82

There has been a sizable increase in the number of recreational boating enthusiasts in the United States in recent years. More than 60 million people currently engage in such boating activities, compared with about 45 million in 1975. Moreover, despite the growing popularity of the sport and the increased number of participants, fatalities from all water transport accidents (recreational and commercial) have *decreased*—from 1,651 in 1970 to 1,429 in 1980.

Water Transport Accidents

Although there has been a decline in mortality from accidents on the nation's waterways, the estimated death toll from such accidents in 1982 ranked second among deaths in all modes of transportation. Detailed data on the recent trend in water transport accident mortality among males (who account for about 90 percent of the fatalities) are shown in Figure A. The death rate among males at all ages combined (adjusted for differences in the age composition of the population) dropped from 16.9 per million population in 1969-70 to 11.8 per million in 1979-80, or by almost a third. There were decreases in every age group. The greatest improvement (about 40 percent) occurred among boys under 5 years of age and aged 10-14, and among men aged 35-44. The smallest improvement (less than 20 percent) was recorded among young men aged 15-19 and 20-24. There were also marked differences by age in the risk of fatal injury from water transport accidents. The fatality rate for 1979-80 rose sharply at the younger ages, reaching a peak of 20.0 per million population at ages 20-24; the level of mortality remained quite high at ages 25-34, but declined with age to 8.2 per million at ages 65 and over.

> "Nine out of 10 fatalities from water transport accidents involve small boats carrying five or fewer passengers."

Nine out of every 10 fatalities from water transport accidents involve small boats—watercraft propelled by small motors, sails, paddles, oars, etc., and carrying five or fewer passengers; only one in 10 fatalities is associated with larger watercraft. Over 85 percent of all fatalities are due to drowning. The remaining deaths—less than 15 percent of the total—result mainly from falls, explosions and fires, machinery accidents, and asphyxiation by gases or fumes.

Fatalities associated with water transportation occur most often in late spring and summer when boating activities are at their peak. More than half of the deaths annually are concentrated in the four-month period May-August. The risk of a boating death also varies greatly from region to region, reflecting differences in climate and the proximity of bodies of water, as well as the age and sex composition of the population. Fatalities are generally more frequent in the Gulf Coast states, in states that border on the ocean, or in states with sizable bodies of inland waters.

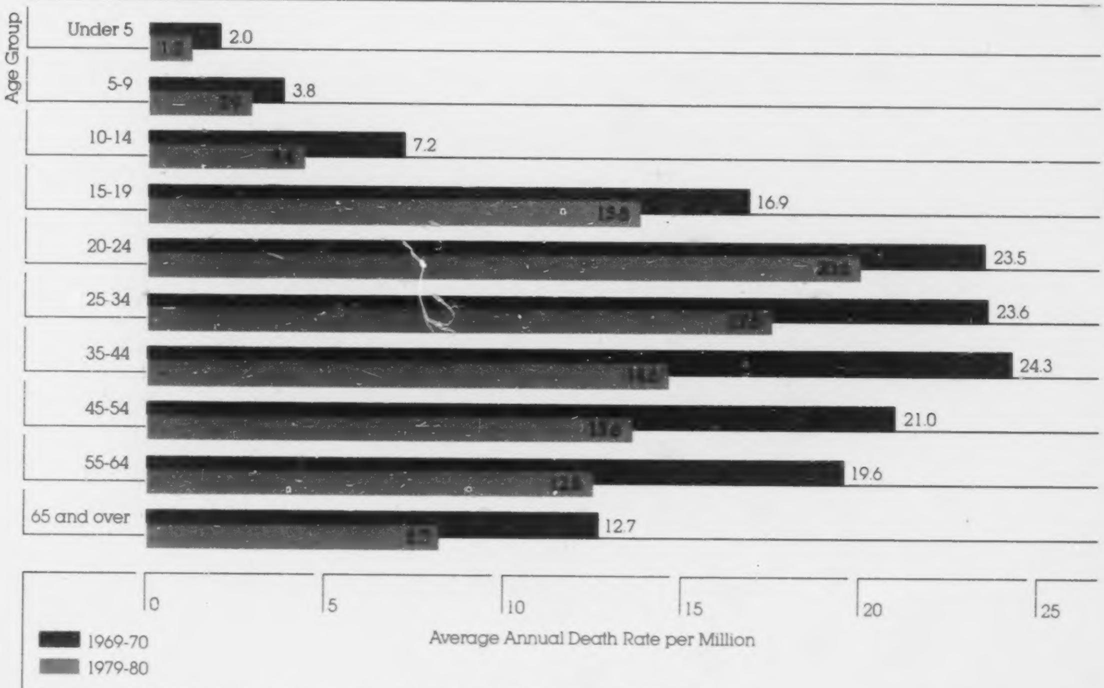
Hazards in Recreational Boating

Each year the U.S. Coast Guard compiles statistics on recreational boating accidents (which account for most of the deaths in water transport accidents): in 1982, 1,178 lives were lost. This death toll is considered to be quite complete because of the stringent regulations set by the Federal Boat Safety Act of 1971 for reporting boating mishaps that result in loss of life. (Homicides, suicides, and deaths due to natural causes are excluded.)

Figure B shows the steadily rising number of recreational boats in use in the years 1972-1982, as well as the downward trend in fatality rates per 100,000 boats during this period. Estimates of

the number of recreational boats in use in the United States are based on nationwide telephone surveys covering the years 1973 and 1976, which were conducted by the Coast Guard, as well as on boat-numbering statistics and estimates of boat production and boat losses in later years. While the number of deaths in boating accidents has fluctuated from year to year, there has been a steady increase in the number of boats in use—from 8.5 million in 1972 to 14.9 million in 1982. The fatality rate per 100,000 boats, therefore, has generally declined—from 16.9 deaths per 100,000 in 1972 to 7.9 in 1982. A more meaningful fatality rate would be one based on

Figure A–Mortality from Water Transport Accidents Among Males
United States–1969-70 and 1979-80



Source of basic data: Reports of the Division of Vital Statistics, National Center for Health Statistics.

exposure (the extent of participation in boating activities); unfortunately, no reliable information on such exposure is available.

Coast Guard reports also provide data on the circumstances associated with fatalities in boating accidents. These reports show that half of the fatal boating accidents each year occur in nontidal calm waters (such as lakes, ponds, reservoirs, dams, gravel pits) under good weather conditions and with light or moderate wind. Open motorboats, mainly craft equipped with outboard motors, are involved in half of the fatalities, rowboats and canoes in little more than a fifth, while sailboats are involved in a very small proportion of the accidents—about 5 percent.

"One half the fatal boating accidents each year occur in nontidal calm waters."

Analysis of boating fatalities according to operation at the time of the accident indicates that the greatest number of fatalities usually occur while cruising (proceeding normally, unrestricted, with an absence of drastic rudder or engine changes). The second largest number of fatalities generally occur when the boat is being used for fishing. Drifting (proceeding without use of engines, oars, or sails but carried along only by the tide and/or wind) ranks third. These three operations account for three-fourths of all boating fatalities each year.

As shown in the table which lists the number of fatalities in the five-year period 1978-1982, almost two-fifths of all boating accident victims perished when their boats capsized. A quarter of the fatalities were caused by falling overboard. One-seventh were due to collisions with other vessels or with fixed or floating objects. The Coast Guard attributes the great majority of such fatalities to some fault on the part of the operator in handling the vessel. Chief among these faults are inattention or carelessness, overloading the boat or improper weight distribution, and lack of training and experience on the part of the operator, which often leads to operations exceeding the capabilities of the craft.

Alcohol and Boating Accidents

Alcohol abuse while boating may be the *leading* cause of recreational boating deaths. According to the National Transportation Safety Board, at least two out of every three boating fatalities are alcohol related. In some areas of the country, moreover, almost two-fifths of the skippers involved in fatal boating accidents were judged to

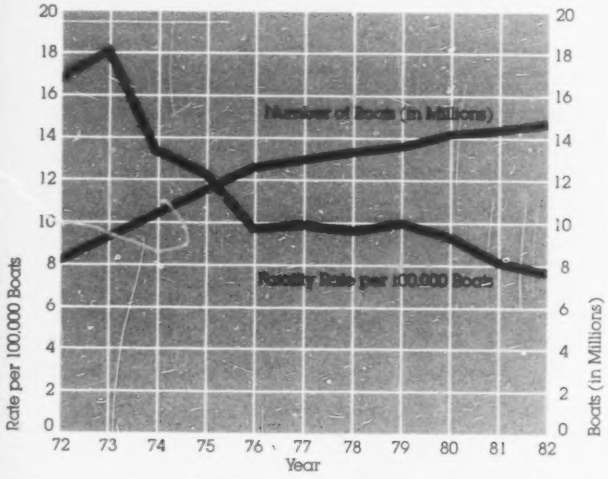
Fatalities from Recreational Boating Accidents
United States—1978-1982

	Number of Fatalities				
Type of Accident*	1978	1979	1980	1981	1982
Total	1,321	1,400	1,360	1,208	1,178
Capsizing	469	518	536	467	409
Falling overboard	359	327	346	288	320
Collision	187	218	184	149	179
With another vessel	69	90	69	48	70
With fixed object	105	96	90	90	91
With floating object	13	32	25	11	18
Swamping/Flooding	93	94	62	79	86
Sinking	25	38	61	46	49
Fire/Explosion	8	24	9	7	9
Fuel	6	24	9	6	9
Other	2	0	0	1	0
All other	180	181	162	172	126

*Type of accident refers only to the first event that occurred. Some accidents involve more than one event, e.g., a grounding followed by a sinking is included only as a grounding.

Source: Reports of the U.S. Coast Guard

Figure B–Recreational Boating Fatality Rates
1972-1982



Source: Reports of the U.S. Coast Guard.

be *legally drunk* at the time of the accident. The involvement of alcohol in boating accidents and fatalities has been grossly underreported. Most states prohibit drinking alcoholic beverages while operating a boat, but enforcement is practically nonexistent. Although a number of states have recently begun to address the problem, there is a dearth of educational material covering the issue. However, the National Safe Boating Council, which sponsors National Safe Boating Week each year, will focus on alcohol and boating in this year's campaign.

> "At least two out of every three boating fatalities are alcohol related."

Personal Flotation Devices

The law requires every boat to carry a Coast Guard-approved personal flotation device (PFD) for each person aboard (including water skiers being towed) that must be the proper size for the intended wearer. However, there is no requirement that the PFD actually be worn. The use rate of PFDs (in the seven out of 100 times that they are available) is about half that of auto safety belts. Coast Guard studies further indicate that seven out of 10 of those killed in boating accidents did not use the PFDs that were known to be on board. To point up the importance of PFD use, the motto for National Safe Boating Week in 1983 was "Wear Your PFD...Your Friend for Life."

The unsafe practices that contribute to recreational boating accidents can be eliminated to a considerable extent through safety education.

> "The use rate of personal flotation devices is about half that of auto safety belts."

The decrease in mortality from boating accidents is evidence that programs to promote boating safety have achieved a considerable measure of success. Unfortunately, as more and more people participate in this sport, many will venture forth for the first time with little or no formal instruction on boat handling. With the approach of the summer season, when recreational boating activities are at their height, both novices and experienced operators should take advantage of the many safety education programs sponsored by individual states, the Coast Guard, the Coast Guard Auxiliary, the U.S. Power Squadron, the American Red Cross, the National Safety Council, and the Boat Owners Association of the United States. These organizations are rendering a valuable service in an effort to make boating a safe as well as a pleasurable activity.

The Federal Role in Recreational Boating Safety

Recreational boating in the United States is a diverse and ever-increasing leisure activity. The safety of all who use our nation's waters is the major concern of the U.S. Coast Guard. The Coast Guard has been involved in the preventive aspects of boating safety since passage of the first federal laws specifically addressed to safety of small boats in 1910 and 1918. Subsequent major federal laws in 1940, 1948 and 1971 greatly expanded the Coast Guard's responsibility and authority.

Under the Federal Boat Safety Act of 1971, the Coast Guard was assigned the responsibility of coordinating a national boating safety program. The Recreational Boating Safety Program is now one of several specific Coast Guard programs, conducted under a Program director on the commandant's staff through the twelve district commanders in the field. However, the task of promoting safety cannot – and should not – be undertaken by the federal government (the Coast Guard) alone. The states as well as the many boating organizations and the boating industry are partners in this effort. The Coast Guard promotes cooperation and uniformity among these entities and provides assistance as well. Respective roles continue to evolve. Here is where we are.

Liaison for State Boating Safety Programs
Effective liaison between the states and the Coast Guard assists the states in developing and administering comprehensive state boating safety programs and encourages uniformity of laws and regulations. State boating safety programs include enforcement, education, boat registration, training and accident investigation functions. The Coast Guard administers an assistance program, financed from federal motorboat fuel taxes and aimed at fostering development of active state boating safety programs.

Because dedicated boating law enforcement is more properly a function of state and local jurisdictions, the Coast Guard has reduced its on-the-water activity directed at enforcing boating safety laws. At the same time, we offer training to improve professionalism, and continue to enforce boating safety laws in the course of general enforcement of all laws for which we are responsible.

Boating Education – National Coordinator
The Coast Guard's role in boating education is as a national coordinator, promoting maximum effective involvement of all parties concerned with education, and providing guidance regarding the minimum essential safety information that boating educational programs should contain. The task of providing direct education to boaters rests primarily on the individual states and volunteer organizations such as the Coast Guard Auxiliary, the U.S. Power Squadrons and the Red Cross.

The 42,000 member civilian volunteer Coast Guard Auxiliary assists the Coast Guard in promoting safety in recreational boating through its classroom education and courtesy safety examinations of vessels. The Auxiliary also provides substantial assistance in other Coast Guard missions, such as search and rescue.

Regulation of Construction Standards
Regulation of manufacturing construction standards is an important federal responsibility that facilitates interstate commerce by ensuring national standards of construction. This part of the Coast Guard program also prevents importation of unsafe marine products while maintaining the credibility of U.S. standards in international markets.

The Coast Guard has established the basic system of minimum federal standards and regulations where a need has been justified by accident analysis, evaluation of other data, or research. On these and other major boating safety matters we consult the National Boating Safety Advisory Council – a 21-member advisory body required by the Federal Boat Safety Act with membership drawn equally from state boating law administrators, manufacturers of boats and associated equipment, boating organizations and the general public.

Consumer Protection Program
Through our product assurance program we educate manufacturers on federal requirements; we evaluate compliance, primarily through testing boats bought in the open market and through factory visits; we investigate potential defects that present substantial risk of injury to the public and we enforce manufacturers' responsibilities. When a product is found that does not comply with standards, the manufacturer must conduct a defect notification campaign by advising first and known subsequent purchasers of boats, dealers and distributors. The defect is corrected at the manufacturer's expense. This is a major federal consumer protection program.

All of the institutional cooperation and standards, however, are only truly meaningful if the operator of the recreational boat is equally aware of safe boating practices and follows them. The marked reduction in the boating fatality rate since 1971 indicates that we are making progress. What we need now and in the future is a continued emphasis on education – on the dangers of drinking while boating or safe boating practices in general – and emphasizing the responsibility of boat operators for the lives of others, as well as their own. For our part, the Coast Guard will continue to work to keep everyone pulling together to achieve the common goal of safe and happy boating.

James S. Gracey, Admiral
U.S. Coast Guard Commandant

PROJECTIONS OF POPULATION GROWTH AT THE OLDER AGES

Men and women aged 65 and over will constitute the fastest growing segment of the population during the next 70 years. This was one of the findings of a recent study of population trends and projections in the United States.[1] Further analysis now indicates that the population in the age 85 and over category is expected to increase at a rate about four times greater than that for the age 65 and over group as a whole. The rapid expansion of this older group has important social and economic implications for the future.

Marked Growth...Ages 85 and Over

In July 1982 there were 26,824,000 persons aged 65 and over in the nation. Population projections indicate that this group is likely to increase to 35,036,000 by the year 2000 (a gain of 31 percent) and may even reach 67,060,000 by 2050 (a gain of 150 percent). By comparison, the population at ages 85 and over will probably rise from 2,445,000 in July 1982 to 5,136,000 in 2000 (or by 110 percent) and to 16,063,000 in 2050 (or by 557 percent).

As a result of the extremely rapid increase in the number of persons aged 85 or older, their proportion of the population at ages 65 and over will rise from less than a tenth in 1982 to about one-quarter in 2050. Moreover, persons aged 85 and over are expected to comprise more than 5 percent of the total population of the United States in 2050—up from 1 percent in 1982. Additional data on the population in age groups 65 and over and 85 and over in each decennial period between 1970 and 2050 are presented in Figure A.

> "During the next 70 years, the number of people 85 years and over is expected to increase 4 times faster than those 65 and over."

Future Consequences

The marked increase in the number of senior citizens, especially at ages 85 and over, will have a significant effect on the nation's health care, financial services, and social support systems. The impact will be felt to a greater extent in those areas of the country with higher concentrations of older residents.[2]

The elderly have more health problems than their juniors,[3] and tend to have more complicated and severe diseases that require longer periods of hospitalization and more extensive nursing services, as well as greater utilization of home health care and extended care facilities.[4] These conclusions are supported by a recent study of the National Center for Health Statistics; their projections of health services utilization and health care expenditures in the 1978-2003 period point to increasing numbers of individuals with limitation of activity, lengthening hospital stays, greater numbers of nursing home residents, and a corresponding rise in costs.[5]

> "By the year 2050, people aged 85 and over are expected to comprise more than 5 percent of the population."

The increasing size of the older population will also place unprecedented stress on the Social Security system and private retirement plans, as well as on personal savings and pension arrangements. New and diverse financial products will have to be devised to serve the needs of this group. With increased longevity in the future, it is conceivable that middle-aged children could have both parents and grandparents to care for.

Table 1—Population Aged 65 and Over

United States—1970-2050

	Male				Female			
Year As of July 1	**Ages 65 and Over**	**Ages 65-74**	**Ages 75-84**	**Ages 85 and Over**	**Ages 65 and Over**	**Ages 65-74**	**Ages 75-84**	**Ages 85 and Over**
Numbers in Thousands*								
1970	8,413	5,461	2,456	496	11,693	7,032	3,727	934
1980	10,363	6,787	2,886	691	15,345	8,861	4,901	1,583
1982	10,778	7,004	3,052	723	16,046	9,131	5,192	1,722
1990	12,652	7,861	3,827	964	19,147	10,193	6,456	2,496
2000	13,734	7,764	4,577	1,393	21,302	9,930	7,630	3,743
2025	24,210	15,089	7,053	2,069	34,426	17,999	10,819	5,609
2050	27,044	13,914	8,504	4,627	40,016	16,108	12,472	11,436
Age Distribution†								
1970	100.0%	64.9%	29.2%	5.9%	100.0%	60.1%	31.9%	8.0%
1980	100.0	65.5	27.8	6.7	100.0	57.8	31.9	10.3
1982	100.0	65.0	28.3	6.7	100.0	56.9	32.4	10.7
1990	100.0	62.1	30.3	7.6	100.0	53.3	33.7	13.0
2000	100.0	56.5	33.3	10.2	100.0	46.6	35.8	17.6
2025	100.0	62.3	29.1	8.6	100.0	52.3	31.4	16.3
2050	100.0	51.5	31.4	17.1	100.0	40.2	31.2	28.6
Percent Change								
1970-1980	23.2%	24.3%	17.5%	39.3%	31.2%	26.0%	31.5%	69.5%
1982-1990	17.4	12.2	25.4	33.3	19.3	11.6	24.3	44.9
1990-2000	8.6	−1.2	19.6	44.5	11.3	−2.6	18.2	50.0
2000-2025	76.3	94.3	54.1	48.5	61.6	81.3	41.8	49.9
2025-2050	11.7	−7.8	20.6	123.6	16.2	−10.5	15.3	103.9
1982-2000	27.4	10.9	50.0	92.7	32.8	8.8	47.0	117.4
1982-2050	150.9	98.7	178.6	540.0	149.4	76.4	140.2	564.1

*Figures have been independently rounded; hence, totals may not equal the sum of the parts.

†Percent of population aged 65 and over.

Source of basic data: Various reports of the Bureau of the Census.

Table 2—Characteristics of Population Aged 65 and Over

United States—March 1982

Characteristics	Male Ages 65 and Over	Male Ages 65-74	Male Ages 75 and Over	Female Ages 65 and Over	Female Ages 65-74	Female Ages 75 and Over
Numbers in Thousands						
Population	10,310	6,770	3,540	14,920	8,927	5,993
Percent Distribution						
Race	100.0	100.0	100.0	100.0	100.0	100.0
White	90.0	89.7	90.6	90.5	90.1	91.2
All other	10.0	10.3	9.4	9.5	9.9	8.8
Marital Status	100.0	100.0	100.0	100.0	100.0	100.0
Single	4.4	4.9	3.3	5.6	5.3	6.1
Married	80.0	84.0	72.5	40.2	51.3	23.6
Widowed	12.4	7.5	21.8	50.4	38.3	68.5
Divorced	3.2	3.6	2.4	3.8	5.1	1.8
Family Status	100.0	100.0	100.0	100.0	100.0	100.0
In families	83.7	86.6	78.0	56.8	63.0	47.5
Householder	76.8	80.3	70.1	10.0	10.0	10.0
Married, spouse present	73.9	78.0	66.1	1.7	2.3	.9
Spouse of householder	3.1	3.0	3.2	36.4	46.7	21.2
Other	3.8	3.3	4.9	10.4	6.3	16.3
Not in families	16.3	13.4	22.0	43.2	37.0	52.5
Householder	15.3	12.4	21.1	42.4	36.1	51.8
Other	1.0	1.0	.9	.8	.9	.7
Labor Force Status*	100.0	100.0†	100.0‡	100.0	100.0†	100.0‡
In labor force	17.8	26.9	12.2	7.9	14.9	4.5
Employed	17.1	25.8	11.8	7.6	14.4	4.4
Unemployed	.7	1.1	.4	.3	.5	.1
Not in labor force	82.2	73.1	87.8	92.1	85.1	95.5

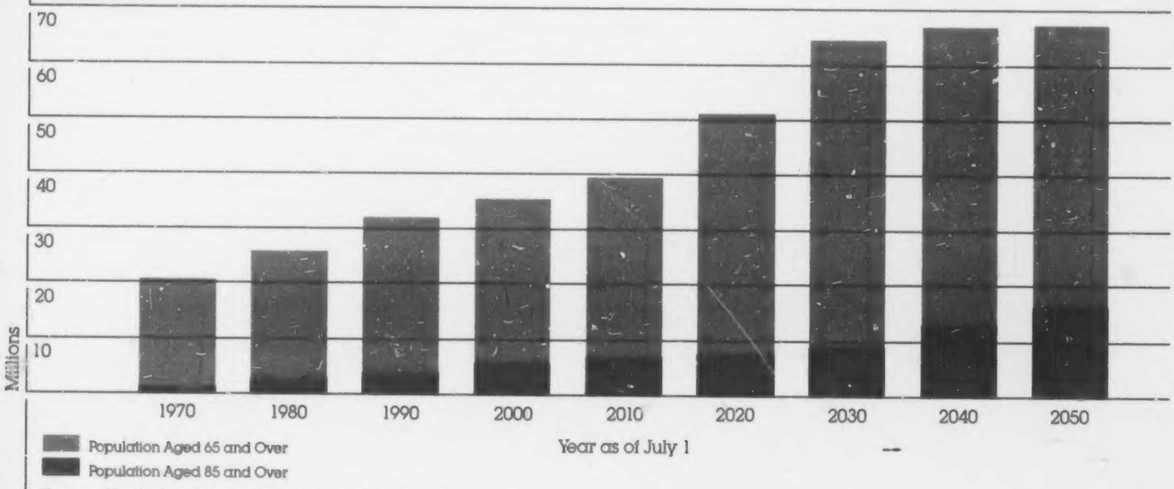
*Based on 1982 annual average. †Refers to ages 65-69. ‡Refers to ages 70 and over.

Note: Data relate to the noninstitutionalized population.

Source of basic data: Reports of the Bureau of the Census and the Department of Labor.

Detailed information on the population of the United States at ages 65 and over is presented in Table 1. As shown, there were 10,778,000 men and 16,046,000 women in this age bracket in July 1982. At the same time the population count of persons aged 85 and over included 723,000 men and 1,722,000 women. The number of women exceeded the number of men by about 5.3 million at ages 65 and over and by approximately 1.0 million at ages 85 and over. Population projections indicate that the sex disparity will widen rapidly as a result of women's more favorable

Figure A–Population Trends and Projections at Ages 65 and Over
United States–1970-2050



Source of basic data: Reports of the Bureau of the Census.

survival record. By 2000 the effect of this continuing trend will produce a 7.6 million disparity in favor of women at ages 65 and over and a 2.4 million difference at ages 85 and over. By 2050 women will outnumber men by 13.0 million at ages 65 and over and by about 6.8 million at ages 85 and over. With the growing sex differential at ages 85 and over, the ratio of females per 100 males will increase from 238 per 100 in 1982 to about 280 per 100 in 2020 and will then decline gradually to about 250 per 100 in 2050. A graphic presentation of the widening sex disparity at ages 85 and over is shown in Figure B.

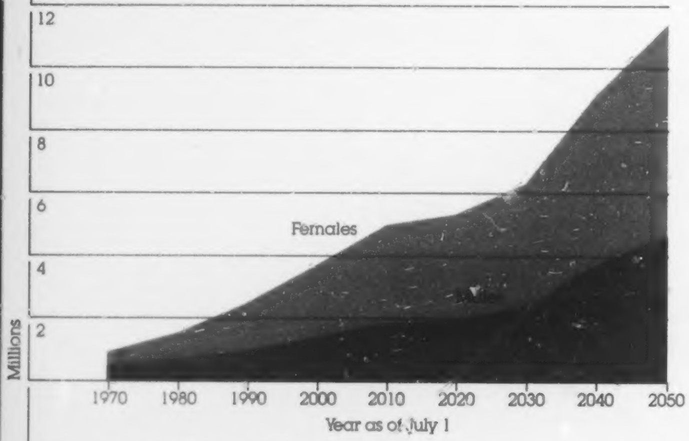
> "With increased longevity, it is conceivable that middle-aged people could have both parents and grandparents to care for."

As has been pointed out, the number of men and women aged 65 and over is expected to increase by about 150 percent during the 1982-2050 period; at ages 85 and over, the increase is likely to reach 540 percent for men and 564 percent for women. In 2050, men aged 85 and over will constitute 17.1 percent of all males in the 65 and over age group; the comparable figure for women will be 28.6 percent.

Profile of Senior Citizens

Table 2 presents a profile of the noninstitutionalized population aged 65 and over. In March 1982 there were 25.2 million older residents in the United States. Of this total, 22.8 million (nine-tenths) were white; the proportion of whites in each age group was slightly higher among females than among males.

Figure B–Population Trends and Projections at Ages 85 and Over
United States–1970-2050



Source of basic data: Reports of the Bureau of the Census.

The outstanding difference in marital status among men and women at the older ages is the substantial disparity in the proportion widowed. In 1982 more than half of the women aged 65 and over were widowed; the proportion rose to more than two-thirds at ages 75 and over. On the other hand, fewer than one in eight men aged 65 and over were widowed, with the ratio rising to about one in five at ages 75 and over. The substantial difference between the number of widows and widowers—a ratio of almost six widows for every widower—can be attributed to the higher death rates among men and the higher remarriage rates among widowers.

> "By 2050 women are expected to outnumber men by 13,000,000 at ages 65 and over; by almost 7,000,000 at ages 85 and over."

Living arrangements among the elderly differ significantly by sex. In 1982 almost seven out of every eight males aged 65 and over resided in family households—the vast majority with their wives. Only one-sixth of the men lived alone or had another type of living arrangement. However, less than three-fifths of the older women lived in a family household; more than two-fifths of them maintained their own residence or lived with nonrelatives. For both men and women, the proportion living in a nonfamily situation rose sharply with advance in age.

> "In 1982 more than half of women 65 and over were widowed; fewer than 1 in 8 men were in this category."

During 1982 more than 3.0 million men and women aged 65 and over were in the labor force. About 1.8 million men (17.8 percent of the males) and about 1.2 million women (7.9 percent of the females) continued to work or to seek employment after their 65th birthday. At ages 65-69, 26.9 percent of the men and 14.9 percent of the women were still in the labor force; participation rates at ages 70 and over were considerably lower. Of those still in the labor force beyond age 65, virtually all were gainfully employed.

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[1] United States population outlook. *Statistical Bulletin* 65:16-19, Jan-Mar 1984.

[2] Continued increase in elderly population. *Statistical Bulletin* 63:6-10, Jul-Sep 1982.

[3] Health of the elderly. *Statistical Bulletin* 63:2-5, Jan-Mar 1982.

[4] National Center for Health Statistics: Americans needing help to function at home. *Advance Data, Vital and Health Statistics*, Number 92, September 14, 1983.

[5] National Center for Health Statistics: Changing mortality patterns, health services utilization, and health care expenditures, United States, 1978-2003. *Vital and Health Statistics*, Series 3, Number 23, September 1983.

Guest Editorial

The Medical Care Challenge of an Aging Population

In the next 50 years the U.S. population over age 65 will increase markedly. As the preceding article in this issue indicates, especially rapid increases in the numbers of the very old—over 85 years of age—are predicted. This changing demographic composition of the U.S. population has profound implications for the entire society, affecting the economic, social and cultural character of the nation.

Future growth in the numbers of elderly is in part a reflection of the post-World War II "baby boom" bulge. However, it is also spurred by the marked reductions in the death rates of the elderly in the last 15 years. Heart and cerebrovascular death rates have witnessed particularly steep declines for the elderly in recent years.

Increasing Strain on Health Services

While this success is remarkable, one implication is that the United States will face an increasing strain on its health services in future years. The number of elderly living at home with some restriction in their daily activities will increase—in large part because of the rapid growth in the population aged 85 and over.

In light of the serious health problems faced by many aged persons, heavy utilization of a range of health care services is not surprising. Based on growth in the number of the elderly, total physician visits by this group can be expected to increase from 145 million in 1977 to 186 million in the year 2000.

Shift in Hospital and Nursing Home Care

The increasing number of elderly with chronic and limiting health problems will cause a major shift in hospital care. The United States has been experiencing a considerable growth in hospital admissions by the elderly, while hospital admission rates for those under age 65 have changed very little in recent years. If these trends continue, the proportion of hospital days accounted for by the elderly will increase from 38 percent to 58 percent by the year 2000.

Nursing homes will also experience an increase in the numbers of patients if current trends and policies prevail. The number of aged in nursing homes should increase from 1.2 million in 1977 to 1.8 million by the year 2000.

Rising Health Expenditures

The aging of the U.S. population is likely to increase further the expense of its already costly health care system. The proportion of the gross national product devoted to health care in the United States could well reach almost 15 percent by the year 2000.

Total health expenditures on the aged are expected to rise from about $50 billion in 1978 to almost $200 billion in 2000, in constant 1980 dollars. Increased expectancy and improved health of the elderly will come with a price—one that is clearly affordable to a growing and prosperous society. But it does represent a challenge to develop innovative approaches to providing quality health care more economically.

Medicare: Public Policy Concern

This creates a particular problem for the federally financed Medicare program. Projected deficits in the Medicare program are a major public policy concern. Pressures will mount to curb hospital and physician reimbursement for services provided to the elderly. Proposals to shift more of the cost to patients through higher deductibles and coinsurance are likely to surface. New revenues through increased payroll taxes or Medicare premiums are options also likely to be considered. Debate over the merits of these and other alternatives will dominate the health policy scene for the next few years.

Karen Davis, Chairman, Department of Health Policy and Management, The Johns Hopkins University School of Hygiene and Public Health

CAPSULE BRIEFS

Capsule Briefs are timely selections from the literature that Statistical Bulletin thinks will have broad reader interest.

Quo Vadis (Pediatrics?)

In Nashville, 207 mothers were interviewed about their children's health needs in local pediatricians' waiting rooms. It was found that these mothers' main concerns were about parental competence, child behavior management and child development, and *not* physical health issues. Importantly, only 28 percent of the mothers discussed these topics with their pediatricians, believing their doctors to be concerned exclusively with disease. If pediatricians are to develop new directions in their practices, the authors concluded that they must be able to assess nondisease child care issues and develop competent intervention/communication skills. (G. B. Hickson *et al*, *Pediatrics* 72 (5): 619-624, 1983)

Some Wives May Break a Man's Heart

We always thought an educated wife was a good thing in any marriage. Now Suzanne Haynes, Ph.D., and her co-workers have shown that an educated wife may be a disadvantage, at least if she lives in Framingham, Mass., and if a marital objective is to prevent her spouse's heart attack. In two recent articles the investigators showed that the risk of coronary heart disease (CHD) in husbands was 2.6 times in men whose wives had 13 or more years of education (like Dr. Haynes), compared with wives with only grammar school education (95 percent CI = 1.0 – 6.9). Further, men with Type A personality patterns were 2.5 times more likely than Type Bs to develop CHD if their wives had 13+ years of schooling. (S. Haynes *et al*, *American Journal of Epidemiology* 118 (1): 1-22, and 23-41, 1983)

Is Alcohol Abuse a Major National Problem?

Yes, it is if defined as five or more drinks, one or more times per month. In a recent seven-state survey, the Centers for Disease Control report (using a sample derived from random digit phone dialing and a standard interview questionnaire) that 23.5 percent of respondents in Texas (median state) fit that definition. The range was from 12.7 percent (Tennessee) to 30.9 percent (Michigan). Though sizable magnitudes, as self-report data they probably represent substantial *underestimates*. Chronic heavy drinking (56 or more drinks per week) was 8.7 percent in the median state (Iowa), and ranged from 4.3 (Tennessee) to 14.8 (New Hampshire). Men reported more acute heavy drinking than women by a factor of 2-3 times across all ages. (Centers for Disease Control, *Morbidity and Mortality Weekly Report* 32 (46): 603-610, 1983)

To Be Or Not To Be: Cost Containment?

Labeling something can sometimes induce important behavorial changes, but seldom *opposite* to the predicted direction. In one West Coast medical-care cost control program (1978-81) it was found that annual dollar costs per enrollee *increased* 56 percent during the period, ranging from 32 percent for primary care to 72 percent for inpatient care. The authors concluded that, though successfully marketed, the program could not achieve its goals because it upped benefits and removed enrollees' cost constraints, but did not impose any new constraints on their physician's practice patterns. (S. H. Moore *et al*, *New England Journal of Medicine* 309 (22): 1400-1404, 1983)

"DRG Upon the Wall, Who is the Fairest…?"

Since October 1, 1983, hospital Medicare reimbursement depends on a diagnostic related group (DRG) code assigned each discharge. The relative dollar value of these DRGs varies with diagnosis, age, whether a surgical procedure is performed, and its kind, if any. This data driven system depends heavily on a reliable valid hospital discharge record. A Cleveland research team investigating Medicare records provided by a hospital in 1978 found the relevant federal data base markedly discrepant for the hospital's diagnostic codes (48 percent), surgical procedure codes (47 percent), and assigned DRGs (61 percent). The authors made a belated and unheeded plea (p. 1011) that "case mix (i.e., DRG-based) reimbursement should not be implemented until…the reliability of the data (has been determined)." (H. D. Doremus and E. M. Michenzi, *Medical Care* 21 (10): 1001-1011, 1983)

Coffee, Tea Seem Worry Free

Now some good news for coffee and tea drinkers, at least for those made anxious by reports that consumption of these beverages may be linked to ill health. From a federal study of 3,776 persons 25-74 years old, two investigators at the National Institute of Mental Health found *no* statistical association between the amount of coffee/tea consumed per day and symptoms of anxiety as determined by six subscales and selected item analysis from a standardized mental health questionnaire. (W. W. Eaton and J. McLeod, *American Journal of Public Health* 74 (1): 66-68, 1984)

Down on the Farm: 1982

Compared with 1920 when 30 percent of Americans lived on farms, the 1982 estimate ranges from 2.4 to 3.0 percent (depending on the definition of "farm" population used). Racially, a major change has occurred since 1920: then, nearly half the black population lived on farms, whereas in 1982 less than 1 percent lived there. Though the total 1982 American farm population is estimated at 170,000 fewer than 1981, the two-year decline 1980-82 (431,000) underscores a trend throughout the 20th century in rural America. In 1981 nearly half (45 percent) of farm families' income was less than $15,000 per year. (U.S. Bureau of Census, Current Population Reports Series P-27, No. 56, U.S. Government Printing Office, Washington, D.C., 1983)

How Old Was He?

For persons whose ages were stated to be over 85 years, death certificates were only moderately reliable as sources of age, according to investigators using a sample of deaths around 1970 from New Jersey and Pennsylvania. By matching census and death certificates for specific individuals it was found that for deaths at ages 85-89 there was good agreement in 95 percent of deaths among whites, but in only 68 percent of deaths among blacks. This tendency to overestimate age among extremely old blacks, according to the authors, "makes it clear that nonwhite mortality at the oldest ages has been consistently understated in official statistics." (I. Rosenwaike and B. Logue, *Demography* 20 (4): 569-585, 1983)

HOW CHILDREN AND ADOLESCENTS PERCEIVE ALCOHOL AND OTHER DRUG ABUSE

The high level of alcohol, cigarette, and other drug use among children and adolescents in the United States has occasioned a great deal of concern and prompted the creation of THE CHEMICAL PEOPLE, a community outreach program launched in November 1983 to combat alcohol and drug abuse by the nation's youth. This program has been funded in large part by the Metropolitan Life Foundation, in a continuation of Metropolitan Life's long-standing commitment to the solution of major health problems.

> "Understanding the attitudes, perceptions, and beliefs of young people about drugs may lead to new, more effective methods to combat drug abuse."

To promote this broad-range program of education, intervention, prevention, and treatment, the *Statistical Bulletin* plans to study and report on several facets of the drug abuse problem. The extent of alcohol and other drug abuse among children and adolescents was discussed in the Jan-Mar 1984 issue of the *Statistical Bulletin*.[1] The current article focuses attention on how children and adolescents perceive (a) the reasons their peers start using drugs, (b) the extent of drug use by their peers, (c) the dangers of drug use, and (d) the availability of drugs. Understanding the attitudes, perceptions, and beliefs of children and adolescents about alcohol and other drugs may furnish new and more effective methods to combat drug abuse.

The first major national survey of young children's attitudes and perceptions about alcohol and drugs was conducted by the *Weekly Reader*, a classroom publication.[2] In this readership opinion poll, teachers gave questionnaires to 3.7 million students in grades 4 through 12 throughout the United States. From the completed questionnaires of the 500,000 children who responded, a random sample of about 100,000 was selected for analysis (with adjustment to reflect the actual population distribution in 1980 by geographic region, population density, and grade level).

It must be noted that students participating in the survey reported on *their perceptions* of the actions of children their own age. The students reponding to the questionnaire did not report on their own behavior, but on what they believed to be happening among *other students*.

Reasons Peers Start Using Drugs

According to information gleaned from the questionnaires, most fourth graders thought the main reason children their age started to use alcohol was a desire to "feel older." Most students in grades 5-8 believed the main reason was a desire to "fit in with other kids," while most high school students thought it was to "have a good time." Students in every grade, however, reported that the main reason children their own age started to use marijuana was to "fit in with other kids." In grades 4-8, girls were more likely than boys to report that other children try alcohol or marijuana to "fit in."

> "Peer pressure to use alcohol or marijuana was reported by one-third of fourth graders and more than half of seventh graders."

There was also other evidence of peer pressure. The extent students thought that children "push each other" to try either alcohol or marijuana increased with age and was higher for alcohol than it was for marijuana. About a third of the fourth graders reported that they thought chil-

Table 1—Trends in Perceived Harmfulness of Drugs High School Seniors, 1975-1982

Q. How much do you think people risk harming themselves (physically or in other ways), if they...

Percent saying "great risk"*

	Class of 1975	Class of 1976	Class of 1977	Class of 1978	Class of 1979	Class of 1980	Class of 1981	Class of 1982
Try marijuana once or twice	15	11	10	8	9	10	13	12
Smoke marijuana occasionally	18	15	13	12	14	15	19	18
Smoke marijuana regularly	43	39	36	35	42	50	58	60
Try LSD once or twice	49	46	43	43	42	44	46	45
Take LSD regularly	81	81	79	81	82	83	84	84
Try cocaine once or twice	43	39	36	33	32	31	32	33
Take cocaine regularly	73	72	68	68	70	69	71	73
Try heroin once or twice	60	59	56	53	50	52	53	51
Take heroin occasionally	76	76	72	71	71	71	72	70
Take heroin regularly	87	[illegible]	86	87	88	86	88	86
Try amphetamines once or twice	35	33	31	30	30	30	26	25
Take amphetamines regularly	69	67	67	67	70	69	66	65
Try barbiturates once or twice	36	33	32	31	31	31	28	28
Take barbiturates regularly	69	68	69	68	72	72	70	68
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	5	5	4	3	4	4	5	4
Take one or two drinks nearly every day	22	21	19	20	23	20	22	22
Take four or five drinks nearly every day	64	61	63	63	66	66	65	66
Have five or more drinks once or twice each weekend	38	37	35	35	35	36	36	36
Smoke one or more packs of cigarettes per day	51	56	58	59	63	64	63	61

*Answer alternatives were: (1) No risk (2) Slight risk (3) Moderate risk (4) Great risk and (5) Can't say drug unfamiliar.

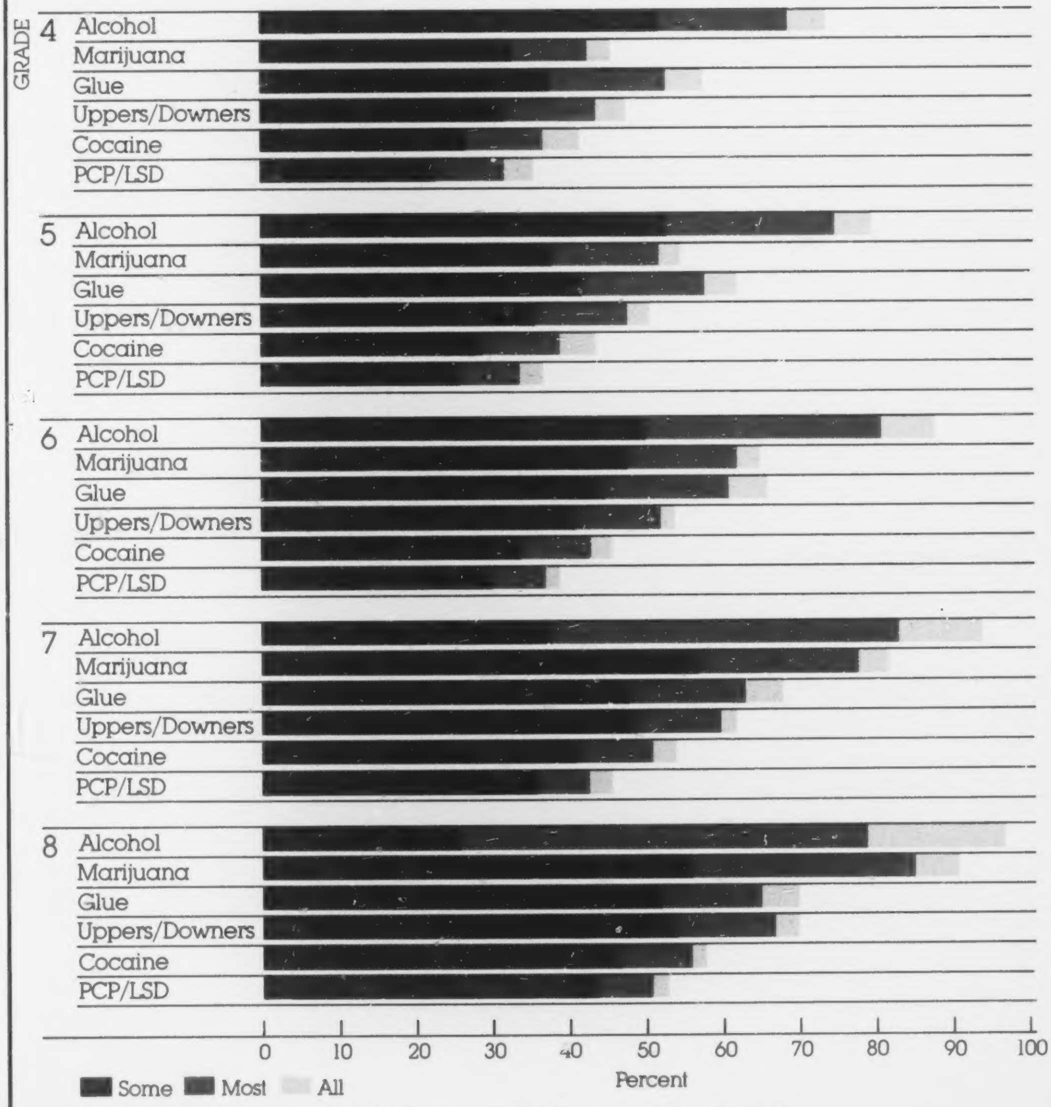
Source of basic data: *Student Drug Use in America: 1975-1982.* National Institute on Drug Abuse, 1983.

dren in their age group felt pressured by their peers to try either alcohol or marijuana; in the seventh grade the corresponding proportions were 60 percent in the case of alcohol and 50 percent for marijuana. Peer pressure to start drinking alcohol or smoking marijuana was perceived to be greater by children in urban areas than by those in nonurban areas.

Extent of Drug Use by Peers

Data on children's perceptions of drug use among their peers are presented in Figure A. About 75 percent of the fourth graders believed that children their age in their town had tried alcohol, while almost all the eighth graders (97 percent) believed this. Almost half the fourth graders thought that their peers had tried mari-

Figure A–Children's Perceptions of Drug Use Among Their Peers
By School Grade Level, 1983



Source of basic data: *A Study of Children's Attitudes and Perceptions About Drugs and Alcohol.* Xerox Education Publications, 1983.

juana, compared with about 90 percent of the eighth graders who thought so. Children in urban areas and on both coasts reported more peer involvement with drugs than did children in other areas.

> "Children in urban areas and on both coasts reported more involvement with drugs among their peers than did children in other areas."

As shown in Figure A, many students—even as early as the fourth grade—believed that significant numbers of children their age had experimented with such *hard* drugs as cocaine, LSD, or "angel dust" (PCP). Such findings indicate that most children in the survey believed the use of alcohol and other drugs to be much greater among school-aged children than had been found in other surveys. Other studies[3] showed a lower prevalence of hard drug usage. The fact that young children believe drug use is more common than it actually is has grave implications, since so many children have said drugs were used to "fit in with other kids." On the other hand, estimates by high school seniors of the extent of drug use among their friends—shown in Figure B—paralleled more closely the seniors' own reported drug use.[4]

Dangers of Drug Use

Almost 75 percent of the students in the fourth grade saw "some," or "great" risk that children their age would harm themselves (physically or in other ways) by taking one drink of alcohol daily or smoking one marijuana cigarette daily; this proportion increased slightly with advance in grade level. Students in every grade considered marijuana a greater risk than alcohol.

> "The fact that young children believe drug use to be more common than it is has grave implications, since so many have said that drugs were used to fit in with other kids."

Data on recent trends in high school seniors' beliefs concerning the dangers associated with using various drugs are presented in Table 1. Such information has been gathered in annual nationwide surveys conducted for the National Institute on Drug Abuse.[4] As shown in the table, there was a decline in the perceived harmfulness of all levels of marijuana use between 1975 and 1978, but this trend was reversed in later years. In the past few years there has also been a dramatic increase in the proportion of students perceiving "great risk" for those using marijuana *regularly*—from 35 percent of the class of 1978 to 60 percent of the class of 1982. This shift in thinking coincided with the reversal of the previous rapid rise in actual marijuana use by this age group, and may very likely be due to the publicity given by scientific circles and the media to the potential dangers of heavy marijuana use.

The proportion of high school seniors who believed that smoking one or more packs of cigarettes a day involved great risk increased from 51 percent of the class of 1975 to 64 percent of the class of 1980, and then dropped slightly to 61 percent of the class of 1982, corresponding in general with the change in the pattern of regular cigarette smoking in this age group over the same period.

High school seniors' attitudes toward the risk associated with various degrees of alcohol usage have remained essentially unchanged during the 1975-1982 period. In 1982 slightly more

Table 2—Trends in Reported Availability of Drugs High School Seniors, 1975-1982

Q. How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?

Percent saying drug would be "Fairly easy" or "Very easy" for them to get*

	Class of [illegible]	Class of [illegible]	Class of [illegible]	Class of [illegible]	Class of [illegible]	Class of [illegible]	Class of [illegible]	Class of [illegible]
Marijuana	88	87	88	88	90	89	89	89
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Some other psychedelic	48	36	34	34	35	35	33	31
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Heroin	24	18	18	16	19	21	19	21
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Amphetamines	68	62	58	59	60	61	70	71
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tranquilizers	72	66	65	64	61	59	61	59

*Answer alternatives were: (1) Probably impossible (2) Very difficult (3) Fairly difficult (4) Fairly easy and (5) Very easy

Source of basic data: *Student Drug Use in America: 1975-1982.* National Institute on Drug Abuse, 1983.

than a fifth of the students thought that there was great risk in having one or two drinks daily, about a third believed there was great risk in having five or more drinks once or twice each weekend, and two-thirds associated great risk with taking four or five drinks daily.

Assessments by high school seniors of the harmfulness of regular use of the illicit drugs LSD and cocaine have fluctuated only slightly between 1975 and 1982. Among seniors in the class of 1982, 84 percent perceived great risk in using LSD regularly and 73 percent considered regular cocaine use to be dangerous. The proportions of high school seniors who saw much risk in any degree of use of amphetamines and barbiturates declined somewhat. Only about two-thirds of the seniors in 1982 considered regular use of such drugs to be a source of great risk.

Availability of Drugs

Drug use among adolescents is affected by the degree of difficulty they experience in obtaining drugs. High school seniors reported substantial differences in the availability of various drugs. The more widely used drugs were reported to be obtainable by the greatest proportion of this age group. As indicated in Table 2, marijuana appears to be almost universally available; almost 90 percent of the class of 1982 reported that they thought it would be "very easy" or "fairly easy" to get some. Amphetamines were perceived to be readily available by 71 percent of the students, tranquilizers by 59 percent, and barbiturates by 55 percent. About half of the seniors (47 percent) reported that cocaine was easy to obtain, and a third of the students reported that they could procure LSD, other psychedelics, and opiates other than heroin. However, only a fifth of the seniors thought heroin was easy to obtain.

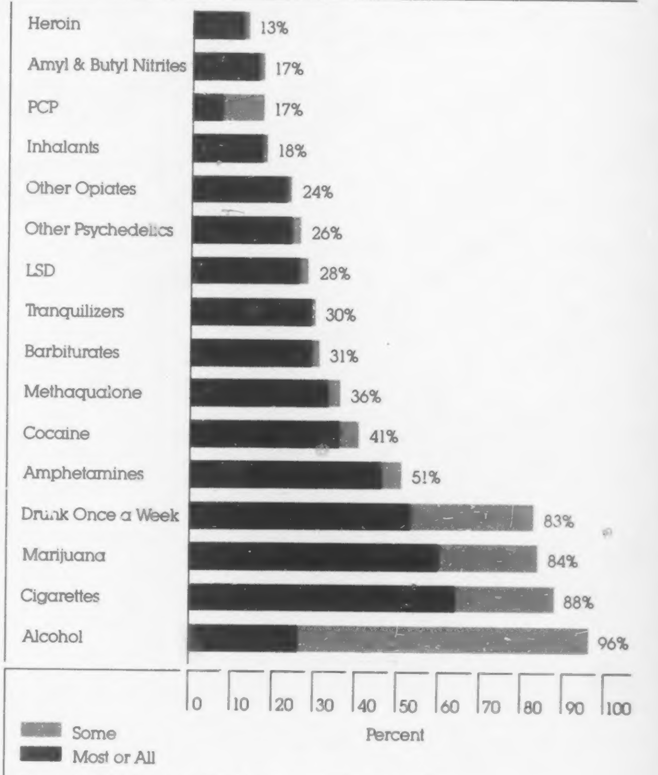
Perception of the availability of marijuana has been at about the same level since 1975. The perceived availability of tranquilizers has been relatively steady since 1979, after a long period of gradual decline. The number of high school seniors who believed they could easily get amphetamines has increased since 1977, while the number who thought barbiturates could be obtained easily has increased since 1980. There was a substantial rise in the reported availability of cocaine between 1977 and 1980, but no further increase has been reported in 1981 and 1982.

> "Drug use among adolescents is affected by the degree of difficulty they experience in obtaining drugs."

Without doubt, the attitudes, beliefs, and perceptions about alcohol and other drugs among children and adolescents will influence their actual—or future—use of these drugs. A greater understanding of the youthful viewpoint about drugs can provide more pointed direction for the community task forces throughout the United States in implementing the program developed by THE CHEMICAL PEOPLE.

Other aspects of alcohol and drug abuse among youngsters will be discussed in future issues of the *Statistical Bulletin*.

Figure B – Proportions of Friends Using Each Drug
As Estimated by High School Seniors, 1982



Source of basic data: *Student Drug Use in America: 1975-1982* National Institute on Drug Abuse, 1983

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[1] Alcohol and other drug abuse among adolescents. *Statistical Bulletin* 65:4-13, Jan-Mar 1984.

[2] *A Study of Children's Attitudes and Perceptions About Drugs and Alcohol.* Xerox Education Publications, 1983.

[3] *National Household Survey on Drug Abuse, 1982.* National Institute on Drug Abuse, 1983.

[4] *Student Drug Use in America: 1975-1982.* National Institute on Drug Abuse, 1983.

ACCIDENT DEATH TOLL CONTINUED TO DECLINE IN 1983

Accidents caused approximately 91,000 deaths in the United States in 1983, about 2,000 fewer than in 1982, according to estimates by Metropolitan Life Insurance Company. The provisional mortality rate from accidents for the year was at an all-time low of 38.9 per 100,000 population, more than 3 percent below the fatality rate of 40.2 in 1982.

> "Metropolitan Life estimates that the accident death rate for 1983 was 38.9 per 100,000 population, an all-time low."

The declining trend in accident mortality since 1980 was slowed down in 1983 to some degree because of extremes in severe weather conditions. A series of heat waves during July and August have been linked to at least 200 accidental deaths in the East, Midwest, and South. This heat spell, with temperatures remaining in the upper 90's and lower 100's, was the worst since that of the summer of 1980, when about 1,300 deaths were reported by the National Oceanic and Atmospheric Administration. The bitter cold spell that swept the nation during late November and December contributed to more than 375 deaths across the country, including those due to exposure, fires, and traffic and aviation accidents.

> "The death toll from motor vehicle accidents in 1983 is estimated to be 44,500, the lowest since 1963."

Motor vehicle accidents were responsible for 44,500 deaths in 1983, about 1,500 fewer than in the previous year. This was the fourth successive year in which there was a decline in the number of deaths from motor vehicle accidents. The death toll for 1983 is the lowest since 1963. Preliminary data indicate that the death rate per 100 million miles traveled reached a record low of 2.7 in 1983. Government analysts link the drop in motor vehicle accident fatalities in the past four years to the decline in the nation's economy during that period. Part of the decrease in fatalities, however, is undoubtedly due to the nationwide campaigns against alcohol-impaired driving and for child-restraint devices.

Deaths from injuries in and about the home accounted for about 20,000 deaths in 1983, about 1,000 fewer than in 1982, and the lowest on record. The 10,800 job-related deaths in 1983 were also the lowest on record; approximately 3,700 of these are included in the estimated 44,500 motor vehicle fatalities for the year. Public accidents, other than those involving motor vehicles, was the only major category of accidents to show an increase in 1983; the number of deaths rose to 19,500, or about 500 more than the corresponding number in 1982.

Catastrophic Accidents in 1983

According to records maintained by Metropolitan Life Insurance Company, about 550 persons lost their lives in catastrophes (accidents taking five or more lives) in 1983. The death toll from such accidents was about 40 percent lower than that in 1982. There was a significant decrease in deaths from every type of catastrophe except fires, where the death toll was approximately the same in both years. Cataclysms (tornadoes, floods, hurricanes, blizzards, etc.) caused a third of the catastrophic deaths in 1983. Accidents in civil aviation and in fires were each responsible for a fifth of the catastrophic deaths, while military aviation accidents and motor vehicle accidents each contributed a tenth to the total.

Major Disaster in 1983

The only major catastrophe (one taking 25 or more lives) of the year occurred between May 18-23. For five days torrential rains swept through several states in the South, flooding homes and highways and unleashing 59 tornadoes which ripped through Texas and part of Louisiana. At least 34 deaths resulted from this disaster.

The accompanying table lists the major catastrophes for the past five years.

Major Catastrophes in the United States, 1979-83

Accidents Taking 25 or More Lives

Date	Place	Type of Accident	Number of Lives Lost
1983			
May18-23	South	Tornadoes, torrential rain, and floods	34
1982			
July 9	Kenner, La.	Crash of scheduled plane	154
January 13	Washington, D.C.	Crash of scheduled plane	78
January 3-5	Northern California	Floods and mud slides	36
April 2	Arkansas, Mississippi, Missouri, Northern Texas	Tornadoes	30
March 19	Near Chicago, Ill.	Explosion and crash of military plane	27
1981			
July 17	Kansas City, Mo.	Collapse of two aerial walkways in hotel	114
October 26	Off Hillsboro Beach, Fla.	Sinking of boat	33
January 9	Keansburg, N.J.	Fire in rest home for aged	31
1980			
November 21	Las Vegas, Nev.	Fire in hotel	85
May 18	Mount St. Helens, Wash.	Volcanic eruption	60
May 9	Tampa Bay, Fla.	Collision of ship with bridge during rainstorm	35
February 13-21	Southern California	Rain, floods, and subsequent mud slides	30
1979			
May 25	O'Hare Airport, Chicago, Ill.	Crash of scheduled plane	273
April 10	Wichita Falls, Texas	Tornado	42
November 1	Gulf of Mexico Off Galveston, Texas	Collision of tanker and freighter	32
April 2	Farmington, Mo.	Fire in retirement home	25

Note: Figures for natural disasters are approximate

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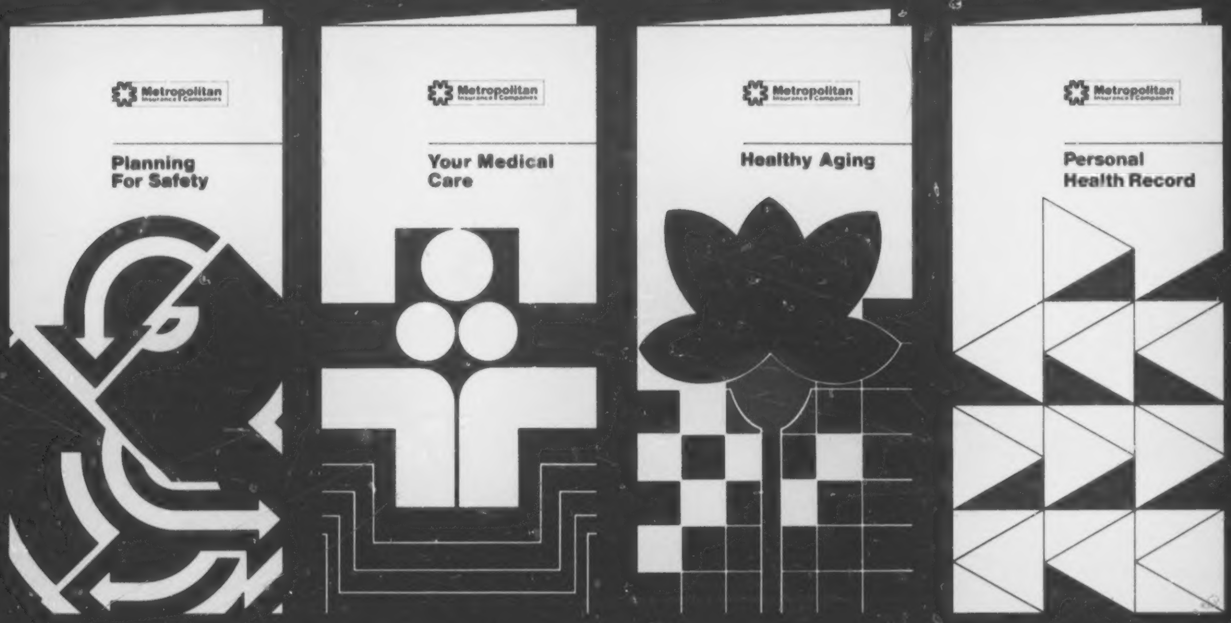
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Healthy Aging. Ways to stay well in later years. Tips on nutrition, exercise, rest, safety, medical checkups. Community resources. 6-panel leaflet.

Personal Health Record. Handy 6-page folder for keeping an up-to-date record of your health and medical history. Every member of the family needs one.

For complete descriptions of these and other health promotion materials plus prices and ordering information, write for a free catalog: Health and Safety Education Division, Area 16-UV, Metropolitan Life Insurance Company, One Madison Avenue, New York, N. Y. 10010.

Coming in Future Issues

- Drinking and Driving: Alcohol Involvement in Traffic Accidents
- Current Life Expectancy of Men and Women in the U.S.
- Mortality from Heart Disease: Significant Geographic Variations
- Drugs Prescribed in Physicians' Offices for Specific Conditions
- State Population Projections by Age
- Chances of Dying from the Leading Causes of Death

HISTORICAL PERSPECTIVES

50 YEARS AGO

IN THE **1934** STATISTICAL BULLETIN

The battle to eradicate smallpox was being won. There were fewer reported cases in the United States than ever before. However, it was pointed out that there were still large sections of the country where people disregarded the disease risk and ignored or belittled the efficacy of the vaccination. Fully three fourths of the more than 6,000 cases reported in the United States occurred in just 12 states. (Today smallpox has been eradicated worldwide—ed.) (Page 7, October)

Metropolitan statisticians computed state life tables. Expectation of life and mortality rates, by sex, at selected ages for persons living in New York, New Jersey, and Pennsylvania during 1929-31 were presented. (This was the first of a series of articles in 1934 on longevity by geographic areas—ed.) Comparisons of the figures were made with those for 1919-20. The analysis revealed that in the past decade the average remaining lifetime for white females increased at practically every age. For white males the gains were limited to those aged 40 or younger. (Page 8, April)

Canada was experiencing rapid population growth. Birth and death statistics were compared with those of the United States. Canada's high birth rate was attributed to pioneer conditions, and their low death rate was seen as evidence of an advanced public health system. When compared with other countries, the picture of Canadian population increase was seen as reflecting the vigor, intelligence, and social organization of a progressive people. (Page 4, February)

The chances of celebrating a silver or golden wedding anniversary for the white population were presented. During the 1929-31 period, if the bride was 20 years old and the bridegroom was 25, the probability that both of them would live an additional 25 years was 765 per 1,000. Joint survival for 50 years was 186 per 1,000. (The chances of joint survival have increased significantly since then—ed.) (Page 1, November)

Metropolitan statisticians drew attention to the growing significance of an apparently new health problem—the rising number of deaths from coronary artery disease. President Coolidge and several other prominent persons had recently died from heart disease. For both men and women, whites and nonwhites, the death rates at every adult age group were increasing rapidly. Clinical aspects of coronary artery disease and reasons for its increase were discussed. (Page 4, August)

The relationship of season of the year to the frequency of fatal accidents in the United States during 1929-31 was examined. It was disclosed that the summer months (July in particular) had a disproportionate share of fatal accidents. The reasons given were the relative hazards of an outdoor lifestyle and the large numbers of people on vacation. It was not surprising that drownings were the most prevalent cause of death, and that inadequate supervision of bathing beaches and water sports was a contributing factor. Other leading forms of fatal summertime accidents were food poisoning, poisoning by venomous reptiles and insects, airplane and balloon accidents, injuries by "other vehicles" (largely horse-drawn—ed.), excessive heat, and lightning and other electric shocks. The types of accidents most frequently occurring in each of the other seasons were also detailed. (Page 2, June)

SB-1 (4-84) Printed in U.S.A.

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STATISTICAL BULLETIN

Vol 65 No 3 Jul-Sep 1984

2 **Drinking and Driving.** Plus an editorial by John Volpe, Chairman, National Commission Against Drunk Driving, emphasizing nationwide priorities to prevent and reduce alcohol-related accidents and deaths.

8 **Regional Variations in Mortality: Diseases of the Heart.** And a related editorial by Dr. Manning Feinleib, Director, National Center for Health Statistics, pointing to the need for further investigation to ensure the continued decline in deaths from heart disease.

18 **Gains in U.S. Life Expectancy.** The trend is up. Latest data reveal that people are living longer than ever before.

Metropolitan Insurance Companies

Contents

1 From the Editor's Desk
2 Drinking and Driving
6 Preventing DUI in Adolescents
7 Nationwide Priorities To Prevent Drunk Driving
John A. Volpe, Chairman, National Commission Against Drunk Driving
8 Regional Variations in Mortality From Diseases of the Heart
15 Decline in Heart Disease Deaths: Progress and Puzzle
Manning Feinleib, M.D., Dr. P.H., Director, National Center for Health Statistics
16 Capsule Briefs
18 Gains in U.S. Life Expectancy
24 Health and Safety Education Materials
Back Cover/Historical Perspectives

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Postage paid at New York, N.Y. Postmaster send address changes to above address.

Letters will be published at the discretion of the editor as space permits and subject to editing and abridgment. They should be typewritten double-spaced. Send to:
Statistical Bulletin, 16UV
Metropolitan Life Insurance Company
One Madison Avenue, New York, N.Y. 10010

From the Editor's Desk

Have you ever known anyone who became the victim of a drunk driver? It is highly probable because the tragic consequences of drunk driving—crash injuries, deaths, permanent disabilities—have affected almost all Americans. Unfortunately, despite our understanding of drinking as a major factor in auto accidents, *in*action has, until recently, characterized our national response. In the lead article of this issue, *Statistical Bulletin* analyzes some grim demographic facts about alcohol's likely role in an estimated 230,000 auto crash injury deaths in the United States since 1974.

SB also draws your attention to the editorial by John Volpe, Chairman, National Commission Against Drunk Driving, that summarizes the challenge of this far-reaching problem, and provides guidelines for an effective community response. As he reminds us, the prevention of drunk-driving deaths and injuries will require *every* American—especially teenagers, young adults and their parents—to participate in action programs, promote better education, and enforce strict behavioral codes for auto use on any social occasion associated with alcohol consumption.

This community emphasis is critical to developing workable programs because governmental solutions are uncertain for two reasons. Social problems involving self-management disorders like drinking do not yield readily to statutory mandates. And having once tried and failed with national prohibition as a constitutional amendment, we know that alcohol will remain accessible to drivers. Accordingly, we must find ways—as individuals, as families, and as communities—to permit its social use in less harmful ways.

Another recent public health quandary in America has a brighter side: the causes of the 15-year decline in the coronary heart disease death rate. In this issue *SB* looks at heart disease deaths and their patterns of variation by national region to determine whether causal clues can be found. Why, for example, should persons residing in Atlantic states be at such greater heart disease death risk than those living in states bordering the Pacific? Regrettably, answers to such questions are not easily provided.

In his guest editorial, Dr. Manning Feinleib reminds us that research issues abound in the heart disease area as death rates decline. Dr. Feinleib, a highly regarded cardiovascular epidemiologist who serves as Director of the National Center for Health Statistics, was formerly the Chief of Epidemiology, National Heart, Lung and Blood Institute, and for many years was a leading collaborator in the Framingham Heart Disease Surveillance Study.

Life expectancy is another health statistic of great interest. In this issue *SB* analyzes findings from the 1983 U.S. life table. For personal or professional reasons, you may wish to check the life expectancy of recent births, or even see how gender and age groups (such as yours) were faring last year. Happily, though the annual increases are small, their direction looks optimistic.

Charles B Arnold

The Statistical Bulletin will publish comment and criticism from readers about its contents. Alternate interpretations of data analyses or different points of view about subjects are particularly welcome. Use address at end of publisher's statement opposite page.

DRINKING AND DRIVING

More than 10 million adults in the United States are either alcoholics or have a serious problem directly related to the abuse of alcohol. In addition, between 3 and 3.5 million youths aged 14-17 are considered to be problem drinkers. The abuse of alcohol adversely affects health, significantly increases mortality from many diseases, and may be responsible for up to 15 percent of the nation's health care costs[1]; but its most alarming consequence is its relationship to fatal traffic accidents. Drunk driving is responsible for more deaths among adolescents and young adults than any other cause.

Motor vehicle accidents are the leading cause of mortality among teenagers and young adults under 25, claiming more lives than all other causes of deaths combined, and about four times the number of lives lost from the next leading cause of death (homicide). The figure on page 5 compares, by age, the percent distribution of motor vehicle accident fatalities with that of the United States population. It clearly illustrates that the representation of the 15-24 age group in motor vehicle fatalities is nearly twice its representation in the population. Moreover, a recent study by the Insurance Institute for Highway Safety[2] found that, per 100 million miles driven, far greater numbers of teenage drivers are involved in fatal passenger vehicle crashes than are older drivers. This study also showed that, at ages 16 through the early 20s, male drivers are involved in fatal crashes more than twice as often as female drivers.

Role of Alcohol in Fatal Traffic Accidents

Recent estimates of alcohol involvement in traffic accidents have been made by the National Center for Statistics and Analysis (NCSA) of the National Highway Traffic Safety Administration (NHTSA). The NCSA maintains and analyzes two national data systems: the Fatal Accident Reporting System (FARS) and the National Accident Sampling System (NASS). In both FARS and NASS, an accident is designated as alcohol involved if (1) any driver or pedestrian in the crash is tested and has a positive blood alcohol concentration (BAC) result $\geq .01$, or (2) any driver in the crash is cited for driving while intoxicated or under the influence of liquor, without a BAC test result, or (3) the police accident report indicates that a driver or pedestrian had been drinking or that there was alcohol involvement without the benefit of a BAC test result. Previous studies have shown that when there is an alcohol involvement designation on a police report—criteria (2) and (3)—about 95 percent of the drivers have subsequent positive BACs.[3]

	1980	1981	1982
Percent Driver Fatalities With			
BAC $\geq$ .01	62%	60%	59%
BAC $\geq$ .10	50%	49%	49%
Percent Fatal Accidents With Alcohol Involvement	55%	57%	58%
Number of Persons Killed in Alcohol-Involved Crashes	28,000	28,100	25,600

Unfortunately, many drivers in fatal and nonfatal crashes are not given BAC tests even when alcohol abuse/involvement is suspected, so that resulting figures under report the true alcohol relationship in accidents. However, 15 states in the 1980 FARS, 17 in the 1981 FARS, and 14 in the 1982 FARS had fairly complete alcohol reporting on *fatally injured drivers;* between 80 and 90 percent of the driver fatalities in these states were tested for alcohol. NCSA made estimates of alcohol

DAVID JOHNSON

involvement for the entire nation by extrapolating from these states, assuming that they were fairly representative of the United States[3]. Using this method, results for 1980, 1981 and 1982 are given in the table on the opposite page.

In summary, according to NCSA's latest estimates, 49 to 50 percent of the *fatally injured drivers* who are tested are found to have BACs ≥ .10 (INTOXICATED), and 59 to 62 percent have BACs ≥ .01 (ALCOHOL INVOLVEMENT); 55 to 58 percent of all *fatal accidents* involve alcohol. The slight decrease in alcohol involvement in driver fatalities from 1980-82 could be indicative of a trend in that direction, since driver fatalities are based on results of BAC tests. On the other hand, the slight increase in alcohol involvement in fatal accidents may be a reflection of increased police awareness and the reporting of alcohol involvement. The estimated number of persons (drivers, passengers, and pedestrians) killed as a result of alcohol-related crashes was 28,000 in 1980, 28,100 in 1981, and 25,600 in 1982. The drop between 1981 and 1982 was due, in part, to the 10 percent decrease in total motor vehicle fatalities that occurred between these two years—the largest decrease since the energy crisis and the subsequent mandatory 55-mile speed limit of the early 1970s[4]. Figures from other studies *exceed* the NHTSA's estimate that 50 percent of drivers involved in fatal accidents are intoxicated at the time of the accident. A new study by the College of American Pathologists investigated medical examiners' records in four states over a period of one year and found that nine out of 10 fatal accidents may involve drunken drivers. They explained that their estimates were based on a sample of *all* drivers, not just those who were killed (as in the NHTSA's studies); they reported that in many fatal accidents, the drunken driver lived while the passengers or pedestrians died.

> "Drunk driving is responsible for more deaths among adolescents and young adults than any other cause of death."

Role of Alcohol in Nonfatal Traffic Accidents
NASS estimates that in the years 1979, 1980 and 1981 an average of 17 percent of all nonfatal injury-producing traffic accidents were alcohol related. This is considered to be a conservative estimate because of the lack of complete BAC data on drivers in nonfatal accidents. The number of persons injured (drivers, passengers, and pedestrians) as a result of alcohol-involved crashes would be about 670,000 a year.

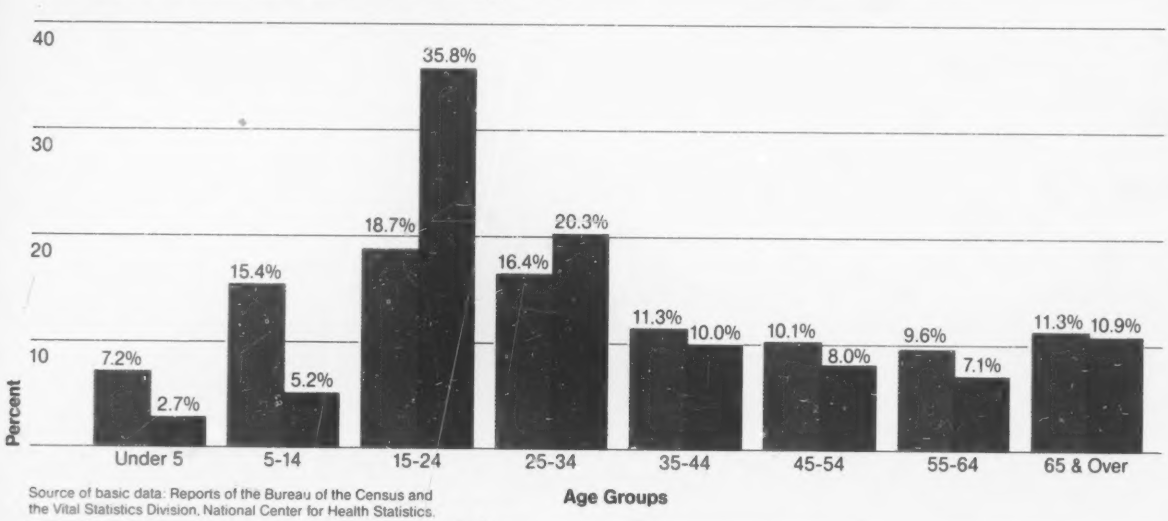
Alcohol Involvement by Driver Age
The following table presents alcohol-involved fatal accident rates for various driver age groups, based on the number of vehicle miles traveled by that age group[3]:

Driver Age	Alcohol-Involved Fatal Accidents Per 100 Million Vehicle Miles Traveled
16-17	4.58
18	4.61
19	4.44
20	3.38
21	4.08
22-24	3.10
25-44	1.50
45 & Over	0.67

This type of rate is considered by most researchers to be the best measurement of the motor vehicle hazard because it takes into account driving *exposure* (the extent to which motor vehicles are used by a particular driver age group). The table shows that 18-year-old drivers on the average are involved in 4.61 alcohol-related fatal accidents (where the 18-year-old was the drinking driver) for every 100 million miles traveled by drivers of that age. The table also indicates that 16- to 19-year-old drivers have the highest rates, followed by 20- to 21-year-old drivers; thereafter, the rate drops precipitously with advance in age. Such data are often cited by advocates for raising the legal drinking age to 21.

Other research has shown that there is a direct correlation between minimum age for purchasing alcohol and alcohol-involved crashes. A recent study[5] in New York State from 1978 to 1981 revealed that the highest rate of alcohol-related accidents was experienced by 18-year-old drivers. Now, a preliminary analysis of crash data[6] shows that the number of 18-year-old

Percent Distribution of Population and Traffic Accident Fatalities by Age, 1980



Source of basic data: Reports of the Bureau of the Census and the Vital Statistics Division, National Center for Health Statistics.

drinking drivers in fatal crashes *decreased by 42%* in the twelve-month period after the alcohol purchase age was raised to 19. A study by the University of Michigan Highway Safety Research Institute[7] reported that states which had raised the legal drinking age have shown an average decrease of 29 percent in motor vehicle accidents.

What is Being Done About the Problem of Drinking and Driving

Alarmed by the prevalence of alcohol involvement in motor vehicle accidents among the youth of our nation, both the public and private sectors of society are increasing their efforts to remedy the situation. In addition to maintaining and analyzing two national data bases, the National Highway Traffic Safety Administration also provides assistance and training to state and local governments in the design and implementation of laws against drunk driving.

The Presidential Commission on Drunk Driving has recommended in its final report that all states immediately raise the minimum age for buying alcohol to 21, and even suggested that federal legislation be enacted that would cut federal highway aid for any state that does not comply. Thus far, 19 states have passed laws setting 21 as the legal minimum age for purchasing alcohol.

> "Study shows that nine out of 10 fatal accidents may involve drunken drivers."

The Department of Health and Human Services sponsored a national Conference for Youth on Drinking and Driving, held in March 1983 and attended by high school student delegates and school superintendents from across the country. The conference, led by students, featured an exchange of information on successful "don't drink and drive" programs run by students within their schools or in their communities. (An example of such a program is Students Against Drunk Driving (SADD), a peer-run community program started in Massachusetts, with several hundred chapters in 22 states.) The delegates returned home with active plans to work on positive peer pressure programs at their own schools to persuade their peers not to drink and drive. The Department of Health and Human Services plans to hold similar conferences annually to mobilize *future* generations of students against drunk driving.

> "Based on mileage, alcohol-related fatal accident rates are highest for 16-19-year-old drivers; next highest for those 20-21 years."

Ultimate responsibility for this problem must be accepted at the local level where attitudes toward drinking and driving are established and where the consequences of drunk driving are most acutely felt. Thousands of local task forces have been established across the country as a result of THE CHEMICAL PEOPLE—a community outreach campaign funded by Metropolitan Life Foundation and the Richard King Mellon Foundation to curb alcohol and drug abuse among adolescents. Hopefully, these task forces will make major contributions toward stemming the tragic loss of lives caused by teenage drinking and driving.

---

[1] *The Effectiveness and Costs of Alcoholism Treatment.* Office of Technology Assessment, Congress of the United States, Washington, D.C., March 1983.

[2] *Insurance Institute for Highway Safety Status Report.* Washington, D.C., February 18, 1984.

[3] *Tracking the Alcohol Involvement Problem in U.S. Highway Crashes.* National Center for Statistics and Analysis, National Highway Traffic Safety Administration, 1983.

[4] Accident death toll in 1982. *Statistical Bulletin* 64:10-12, Jan.-June 1983.

[5] Califano J. The 1982 report on drug abuse and alcoholism. Warner, New York, 1982.

[6] *Youth Alcohol Study.* Preliminary Findings. Division of Alcoholism and Alcohol Abuse, New York State, May 1984.

[7] Wagnaar A. The raising of the legal drinking age in Michigan and Maine. National Institute on Alcohol Abuse and Alcoholism, 1981.

Preventing Driving Under the Influence in Adolescents

Safe-drive programs are being conducted in communities across the country to help adolescents avoid driving when they are under the influence (DUI) of alcohol. Some are sponsored by Students Against Drunk Driving as well as other concerned groups. "Drive-a-Teen"* in Chapel Hill, N.C., is an example. It began in the spring of 1981 as an emergency transportation service. The idea originated when a local student was killed in a traffic accident involving DUI. Students and adult advisers have worked together as colleagues. The community, the parents and the students assumed collective responsibility for preventing DUI. A key element is the anonymity extended to the person given a ride.

"Drive-a-Teen" has become more than chauffeuring for intoxicated adolescents. During 1981-82 student and adult members organized a seminar on problems with alcohol. Out of this grew *Peer Education*, a permanent part of the program. A team of peer educators offer instruction in junior high health education classes and high school driver education classes about drinking and driving. Peer educators receive an initial 10-hour instructional skills training session. The program hopes to promote new community norms among adolescents about responsible decision-making and drinking.

Some fear that the safe-ride services may encourage teenagers to drink at parties because someone will "bail them out." However, it is estimated in Chapel Hill, the majority who seek help would likely ride home with an unsafe driver.

---

*S.W. Spalt. *Traffic Safety* 84(3): 6-7 and 25-26, 1984.

Guest Editorial

Nationwide Priorities to Prevent Drunk Driving

The picture of America reflects the good life—physical fitness, economic opportunity, mobility, long life, and more. However, upon closer examination, this wholesome image seems to blur. Such scrutiny is revealing, too, because it casts a shadow on a rich national resource, our young people.

The advances in health services have been truly remarkable, with exceptional current improvements being demonstrated in the area of accident care and trauma management. Such lifesaving techniques are academic, however, when the crash victim is dead-on-arrival. Unfortunately, motor vehicle accidents are the leading cause of death for those aged 15-24. And alcohol has been shown to be a major factor in the majority of these cases.

Defining the Problem

The drunk driving problem is not confined to youth since it cuts across all ages, classes and cultures without distinction. Any indictment for the annual toll of alcohol-related deaths must be weighed against the prevalent societal attitude that *drinking and driving is socially acceptable.*

The question arises, then, how to respond to the drunk driving issue. A good case can be made for stricter laws, greater enforcement, and swift adjudication. As important as stronger legislation is at the local and state levels, statutes, for the most part, must be regarded as the short-term response. Acceptable solutions must go much deeper if we are to sustain the national resolve to reduce alcohol-related tragedies.

Critical Need for Long-Term Education

In a heartening concert of action during the last three years, the insurance, motor vehicle and alcohol industries, together with the media, public safety leaders, elected officials and grass roots citizen groups, have heightened the public awareness of this issue. The insistent call of all these concerned voices is for reduction of the frightening carnage on our highways. No longer will the casual attitude be tolerated that terms drunk driving deaths as "acceptable homicides." Victims' rights will be given priority with the same zeal that offenders' rights are protected. All of which brings to the forefront the critical need for long-term education programs and treatment measures.

The Presidential Commission on Drunk Driving, in making its Final Report in December 1983, pointed out that all segments of community life must be engaged in the campaign to rid the highways of those choosing to drive after drinking. Laws alone will not guarantee the desired changes. Above all, at least a decade-long commitment will be needed to make *drinking and driving socially unacceptable.*

Solution: Coordinated Efforts

To assist in monitoring existing and planned drunk driving programs by the public and private sectors, the Presidential Commission recommended the creation of a non-profit, non-governmental organization. The new National Commission Against Drunk Driving has been established in affiliation with the National Safety Council. In its own implementation plan, this Commission has set recommendations to receive top priority, including public education with emphasis on youth; age 21 for purchase and possession of all beverage alcohol; creation of task forces; safety checkpoints; enactment of .10 blood alcohol concentration as illegal per se (now in 41 states); prompt license suspensions for driving under the influence; and mandatory sentences.

This is a large order and will require the coordinated efforts of all organizations and a concerned citizenry. Only such an all-out drive against drunk driving will insure for millions of Americans the right to travel the nation's highways in safety and without fear.

John A. Volpe, Chairman
National Commission Against Drunk Driving

REGIONAL VARIATIONS IN MORTALITY FROM DISEASES OF THE HEART

Since 1968 substantial progress has been made in reducing mortality from heart disease in the United States. The age-adjusted death rate steadily declined from 270.0 per 100,000 population that year to 202.0 in 1980—or by 25.2 percent—and to a provisional value of 190.8 per 100,000 in 1982. This favorable trend is due largely to changes in health behavior caused by a gradual public awareness of the detrimental effects of hypertension, smoking, and the beneficial aspects of a low-fat, low-cholesterol diet and prudent amounts of exercise.

Additionally, improved management of high-risk persons, and advances in surgical techniques and medical research (such as the recent results from the federal study confirming the negative relationship of high lipid levels and heart disease), have also contributed to the decline. Notwithstanding, heart disease is still by far the leading cause of death in the United States, accounting for about 760,000 deaths in 1982—or about 40 percent of all fatalities.

Regional Variation—Males

Heart disease death rates vary considerably by geographic region. The diseases of the heart category is broad, including rheumatic fever and rheumatic heart disease, hypertensive heart disease, hypertensive heart and renal disease, ischemic heart disease (which comprises almost three-fourths of the total), and other forms of heart disease. (Codes 390-398, 402, and 404-429 in the Ninth Revision, International Classification of Diseases.)

An analysis of death rates from diseases of the heart for the white population aged 35-74 revealed that for males, the age-adjusted mortality rate ranged from a low of 403.4 per 100,000 in the Mountain division of the nation to a high of 528.9 per 100,000 in the Middle Atlantic division—a disparity of 31 percent. Compared with a death rate of 480.9 per 100,000 for the nation as a whole, the mortality rates in the Pacific and West North Central divisions were also significantly lower. Table 1 presents the ranking of the age-adjusted death rates for white males by geographic area.

Table 1

Age-Adjusted Mortality Rate*
Diseases of the Heart
White Males Aged 35-74
United States, 1980 (per 100,000)

Geographic Division	Rate
Mountain	403.4
Pacific	427.[illegible]
West North Central	433.4
New England	456.5
UNITED STATES	480.9
South Atlantic	487.6
West South Central	498.8
East North Central	499.9
East South Central	510.1
Middle Atlantic	528.9

*See Tables 3 and 4 on pages 13 and 14 for states that comprise the geographic divisions.

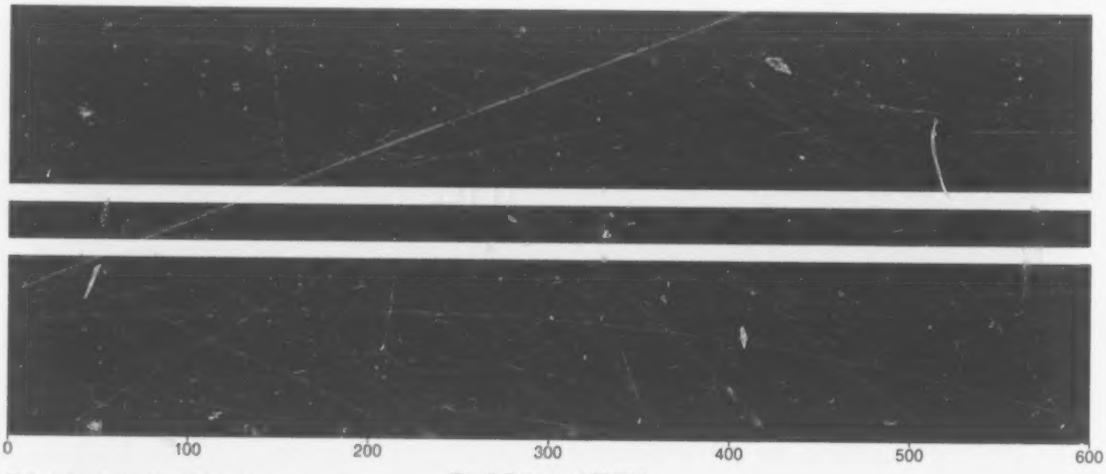
Regional Variation—Females

Among white females aged 35-74, seven of the nine geographic divisions recorded age-adjusted mortality rates less than the United States average. Women who resided in the West North Central states experienced the lowest death rate from heart disease followed by those living in the Mountain and Pacific divisions. On the other hand, the highest mortality rate among females occurred in the Middle Atlantic states, namely 211.7 per 100,000—or 37 percent greater than that registered in the West North Central states. Table 2 shows the relative standings of white female mortality from diseases of the heart.

Figure A-States With Highest and Lowest Mortality From Diseases of Heart

White Males Aged 35-74, United States, 1980

Age-Adjusted* Death Rate per 100,000



*Adjusted on basis of age distribution of the United States total population, 1940.

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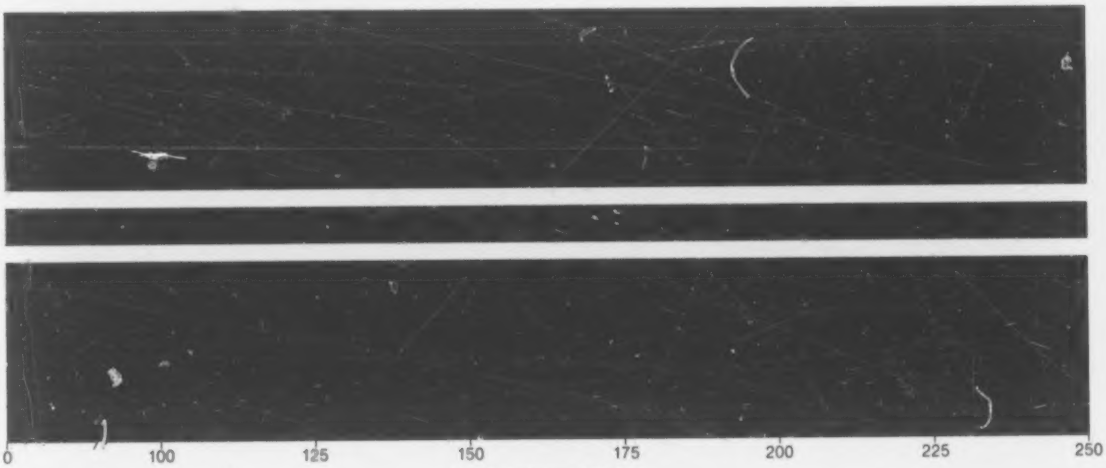
State-by-State Comparisons

On a state-by-state basis, age-adjusted mortality from diseases of the heart among white males was highest in West Virginia, Kentucky, South Carolina, Louisiana and Pennsylvania. All experienced death rates above 530 per 100,000. However, six states reported age-adjusted death rates approximately 20 percent or more below the national average – Washington, Idaho, Utah, Colorado, New Mexico and Hawaii. Figure A presents white male death rates for the five states with the highest and lowest mortality from diseases of the heart.

The comparable analysis for white females aged 35-74 is shown in Figure B (Page 10). Thus, as is evident, the states with the highest age-adjusted death rates for women were West Virginia, New York, Pennsylvania, Kentucky and Delaware. Mortality rates in Ohio and Louisiana were also over 200 per 100,000. In 1980 the lowest female mortality from heart disease was reported in Hawaii, New Mexico, North Dakota, the

Figure B-States With Highest and Lowest Mortality From Diseases of Heart
White Females Aged 35-74, United States, 1980
Age-Adjusted* Death Rate per 100,000



*Adjusted on basis of age distribution of the United States total population, 1940.

District of Columbia and Alaska. All of these areas registered death rates under 140 per 100,000.

Regional Mortality by Age

Mortality from heart disease increased substantially with advance in age—although at a decreasing pace. For the United States as a whole, the death rates among white men more than quadrupled between the age groups 35-44 and 45-54. Between age groups 45-54 and 55-64, the death rates almost tripled. At ages 65-74, the rate was more than twice that of those 10 years younger.

Among white women, mortality from this major cause of death also quadrupled between the two youngest age groups and then more than tripled for each of the other two successive ten-year age brackets. State death rates exhibited much the same pattern. It is significant that heart disease death rates among females range, in most states, from one-fifth those of males at ages 35-44 to about half those of males at ages 65-74. Overall, the age-adjusted death rates of females were about two-fifths those of males.

Among white males aged 35-44, death from heart disease was lowest in the Mountain division of the country—about 52 per 100,000. Death rates of this magnitude or less were reported in seven states—Connecticut, Oregon, New Hampshire, New Mexico, Washington, Colorado and Montana. The highest regional death rate for men in this age group—around 77 per 100,000—was reported in the East South Central states and rates of more than 80 per 100,000 were experienced in Kentucky, Mississippi and Arkansas.

> "Overall, the age-adjusted death rates of females were about two-fifths those of males."

Among white women aged 35-44, the lowest mortality from heart disease occurred in the New England division—11.5 per 100,000—while the highest death rate—22.2 per 100,000—was registered in the West South Central states. By state, mortality ranged from a low of 7 per 100,000 in Connecticut to a high of around 27 per 100,000 in Montana and Arkansas.

"Among white females aged 35-74, seven of the nine geographic divisions recorded age-adjusted mortality rates less than the U.S. average."

Among males aged 45-54, the lowest mortality in 1980 was registered in the Mountain division—228.7 per 100,000—with New Mexico experiencing a rate of just 158.5 per 100,000. On the other hand, the highest rates were found in West Virginia, Kentucky and South Carolina—all with mortality exceeding 320 per 100,000. The Middle Atlantic and East South Central states reported the highest mortality rates—over 300 per 100,000. For women aged 45-54, the lowest rate—37.9 per 100,000—was recorded in North Dakota while the highest rates—nearly 100 per 100,000—were those in Vermont and West Virginia. Mortality was highest in the East South Central and East North Central states and lowest in the West North Central division.

At ages 55-64, the lowest mortality from diseases of the heart among men occurred in the Mountain division—635 per 100,000. The states with the lowest death rates were New Mexico, Hawaii and Idaho. Among the geographic divisions, the highest mortality was found in the Middle Atlantic and East South Central areas where rates in excess of 800 per 100,000 were reported. The states that experienced the highest rates in 1980 were West Virginia, Kentucky, Louisiana and South Carolina—over 850 per 100,000.

Among women aged 55-64, the lowest mortality was registered in the Mountain division—213 per 100,000—closely followed by that in the West North Central and Pacific divisions. In both areas the rates were about 216 per 100,000. New Mexico and Hawaii reported rates of about 160 per 100,000 while Washington, Nebraska, North Dakota, the District of Columbia and Minnesota experienced rates of less than 200 per 100,000. By state, West Virginia, Delaware and New York registered the highest mortality rates from diseases of the heart—over 300 per 100,000. By geographical division, the Middle Atlantic region had the highest death rate—293 per 100,000.

The lowest mortality among males aged 65-74 was reported in the Mountain division—1,455 per 100,000. Hawaii registered a death rate of only 974 per 100,000 while in New Mexico mortality was also very low—1,185 per 100,000. The states with the highest rates—2,000 or more per 100,000—were South Carolina and West Virginia. In the Middle Atlantic states, the mortality rate was 1,952 per 100,000.

"Mortality from heart disease has fallen dramatically since 1968."

For women aged 65-74 the lowest mortality (681 per 100,000) occurred in the Mountain division. Hawaiian women experienced a death rate of 516 per 100,000, whereas in West Virginia the mortality rate was almost twice as high—999 per 100,000. Among women, the Middle Atlantic states, as a group, reported the highest mortality rate—962 per 100,000.

Figure C on page 12 shows for white males and white females separately the states with either the most favorable or the least favorable mortality experience for each of the four age-specific groups. In addition, Tables 3 and 4 show all the age-specific mortality rates from diseases of the heart for each state and the District of Columbia.

Clearly, mortality from heart disease has fallen dramatically since 1968. However, definitive reasons for the decline and for the existence of significant geographic mortality disparities are not

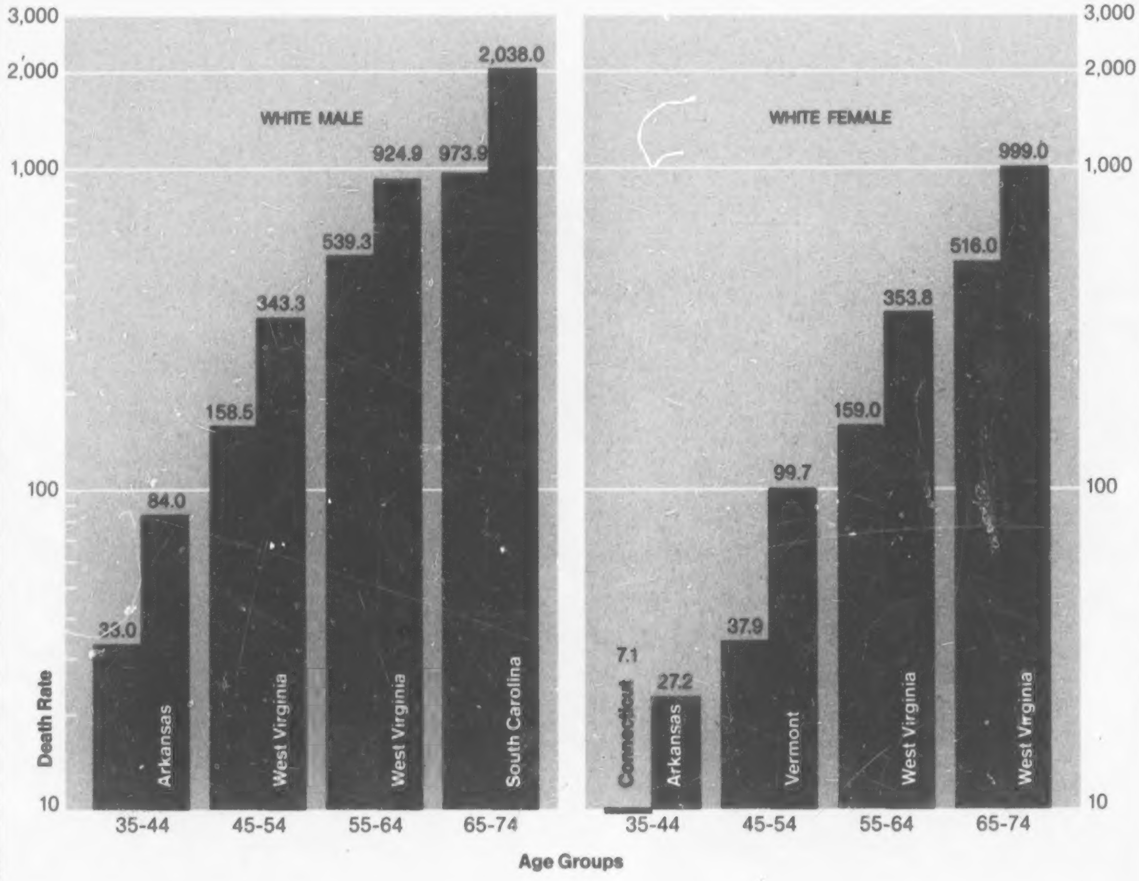


Figure C-States With Highest and Lowest Mortality From Diseases of Heart
White Population Aged 35-74, By Sex, United States, 1980
Death Rate per 100,000

known. Further research into the causes of mortality and morbidity from heart disease among different regions' population groups is indicated. It is hoped that such research will lead to a better understanding of the etiology of heart disease and, in conjunction with what is already known about biological risk factors, environmental influences and life styles, will result in public health programs that further abet mortality decline.

Table 3—Mortality From Diseases of Heart Among White Men
United States—1980

	Death Rate per 100,000				
Area	Ages 35-74*	Ages 35-44	Ages 45-54	Ages 55-64	Ages 65-74
UNITED STATES	480.9	63.8	276.0	740.9	1747.8
NEW ENGLAND	468.8	59.7	258.1	731.6	1721.4
Maine	459.9	66.3	246.9	810.2	1529.2
New Hampshire	471.3	43.2	251.5	759.8	1758.4
Vermont	488.9	70.2	234.7	761.9	1858.6
Massachusetts	488.6	63.9	277.4	737.3	1810.8
Rhode Island	490.9	65.8	241.6	836.5	1746.7
Connecticut	426.4	51.6	238.6	650.9	1588.8
MIDDLE ATLANTIC	528.9	69.8	300.3	802.2	1951.8
New York	527.5	71.3	300.3	799.1	1941.3
New Jersey	524.4	69.4	297.6	782.1	1957.2
Pennsylvania	533.3	67.9	302.0	818.1	1962.2
EAST NORTH CENTRAL	499.9	65.2	281.1	755.5	1858.6
Ohio	514.9	66.5	294.5	762.1	1930.4
Indiana	494.2	70.9	287.0	766.8	1763.0
Illinois	512.2	67.0	284.9	783.8	1895.1
Michigan	499.3	62.0	280.4	763.7	1850.7
Wisconsin	448.1	57.8	236.0	648.4	1753.9
WEST NORTH CENTRAL	433.4	55.3	241.9	648.3	1629.8
Minnesota	419.3	55.7	224.2	641.1	1571.9
Iowa	440.4	58.2	262.4	635.8	1648.6
Missouri	446.8	53.6	241.3	666.2	1713.4
North Dakota	445.9	58.0	230.3	727.1	1619.3
South Dakota	481.9	58.5	284.9	758.0	1720.3
Nebraska	416.2	52.6	225.9	611.4	1601.1
Kansas	413.7	54.8	249.2	609.9	1520.5
SOUTH ATLANTIC	487.6	65.7	291.0	774.6	1702.5
Delaware	519.9	53.7	279.7	800.1	1980.0
Maryland	488.7	56.0	279.1	744.5	1818.6
District of Columbia	462.7	†	224.2	815.7	1691.1
Virginia	498.0	54.5	279.5	764.9	1862.3
West Virginia	581.0	77.1	343.3	924.9	2037.5
North Carolina	521.0	69.1	307.4	818.9	1845.8
South Carolina	559.4	68.8	329.4	855.9	2038.0
Georgia	524.5	72.7	288.5	839.7	1875.0
Florida	436.1	69.3	274.1	696.1	1454.4
EAST SOUTH CENTRAL	510.1	76.7	306.8	800.6	1769.0
Kentucky	561.6	81.7	337.8	883.5	1952.3
Tennessee	492.6	70.5	305.0	775.1	1694.8
Alabama	477.4	76.2	277.3	734.0	1692.6
Mississippi	507.9	83.0	304.6	815.6	1713.9
WEST SOUTH CENTRAL	488.8	68.6	288.1	757.2	1739.9
Arkansas	515.2	84.0	319.2	803.6	1753.7
Louisiana	537.3	79.6	302.0	867.1	1879.3
Oklahoma	490.4	64.0	272.7	773.3	1777.0
Texas	470.9	64.3	283.0	715.5	1691.3
MOUNTAIN	403.4	52.1	228.7	634.7	1454.7
Montana	430.2	33.0	266.1	680.0	1557.7
Idaho	397.0	65.0	214.4	577.3	1496.8
Wyoming	449.8	72.0	252.2	651.4	1682.8
Colorado	385.8	38.9	218.7	605.0	1426.6
New Mexico	324.2	40.9	158.5	539.3	1185.4
Arizona	423.5	60.1	250.1	673.9	1475.0
Utah	394.8	57.6	224.0	631.2	1388.2
Nevada	464.5	72.3	264.0	729.2	1640.8
PACIFIC	427.9	54.5	242.8	658.1	1569.7
Washington	401.7	40.3	225.3	611.5	1522.2
Oregon	422.3	50.8	243.5	692.1	1478.2
California	435.3	58.5	246.2	664.1	1599.5
Alaska	452.0	†	246.7	696.6	1729.2
Hawaii	321.7	†	228.7	542.7	973.9

*Adjusted on basis of age distribution of the United States total population, 1940.

†Rates not shown—10 or less deaths.

Source of basic data: Mortality figures from Division of Vital Statistics, National Center for Health Statistics—rates computed in the Health and Safety Education Division of the Metropolitan Life Insurance Company.

Table 4—Mortality From Diseases of Heart Among White Women

United States—1980

Area	Death Rate per 100,000 Ages 35-74*	Ages 35-44	Ages 45-54	Ages 55-64	Ages 65-74
UNITED STATES	181.6	16.9	72.8	251.3	804.3
NEW ENGLAND	175.9	11.5	67.3	243.6	800.7
Maine	187.5	†	56.1	268.6	873.7
New Hampshire	183.9	†	79.6	241.8	837.4
Vermont	194.2	†	99.7	298.0	800.4
Massachusetts	182.2	13.7	71.7	249.0	825.0
Rhode Island	177.2	†	61.2	244.1	809.6
Connecticut	154.5	7.1	57.0	218.3	709.7
MIDDLE ATLANTIC	211.7	17.1	78.2	292.9	961.6
New York	217.0	15.6	83.6	303.6	976.7
New Jersey	198.3	16.7	68.3	266.7	923.3
Pennsylvania	212.6	19.2	77.1	294.3	962.7
EAST NORTH CENTRAL	195.3	17.6	79.6	269.6	864.4
Ohio	203.6	18.9	81.5	285.7	895.3
Indiana	193.4	18.2	88.5	282.9	804.0
Illinois	198.3	19.8	81.9	258.4	895.5
Michigan	197.3	16.5	80.2	274.9	873.3
Wisconsin	168.5	11.3	57.8	233.4	782.2
WEST NORTH CENTRAL	154.7	13.3	57.8	216.2	694.8
Minnesota	143.2	11.9	50.6	199.8	652.1
Iowa	149.5	12.7	43.8	209.1	701.5
Missouri	172.4	14.6	73.0	236.1	762.6
North Dakota	133.4	†	37.9	197.1	624.7
South Dakota	142.8	†	48.0	221.8	625.3
Nebraska	142.1	†	53.0	193.4	649.3
Kansas	159.8	18.0	67.5	228.4	677.8
SOUTH ATLANTIC	170.6	17.0	68.8	245.1	736.2
Delaware	203.8	†	64.7	324.4	888.5
Maryland	199.1	19.5	72.2	271.9	903.1
District of Columbia	134.7	†	†	199.5	615.1
Virginia	179.6	13.6	59.0	246.1	840.0
West Virginia	237.3	23.7	97.1	353.8	999.0
North Carolina	175.8	14.0	72.8	251.6	765.5
South Carolina	190.2	23.7	68.2	251.6	863.9
Georgia	181.8	19.6	75.7	268.7	762.3
Florida	140.8	15.0	61.5	201.1	595.1
EAST SOUTH CENTRAL	181.0	18.2	80.0	249.4	781.7
Kentucky	208.1	20.8	90.6	294.5	889.7
Tennessee	172.0	13.6	74.2	248.7	738.6
Alabama	167.9	21.8	81.8	202.5	740.2
Mississippi	173.2	17.8	70.2	247.2	748.1
WEST SOUTH CENTRAL	178.6	22.2	75.9	246.2	765.5
Arkansas	168.2	27.2	78.2	209.9	723.2
Louisiana	203.4	21.7	86.5	286.7	872.2
Oklahoma	173.7	15.3	73.0	244.3	757.3
Texas	175.5	23.1	73.5	243.2	749.4
MOUNTAIN	158.1	17.7	71.8	212.5	681.2
Montana	171.6	26.5	70.8	250.3	703.6
Idaho	155.2	†	68.0	208.7	678.0
Wyoming	186.0	†	61.7	214.1	929.8
Colorado	160.2	21.1	68.7	210.9	698.7
New Mexico	130.2	†	57.3	159.0	609.6
Arizona	156.6	16.5	80.2	213.5	650.6
Utah	149.7	†	69.3	213.4	632.4
Nevada	187.6	†	90.6	250.9	793.5
PACIFIC	163.5	15.1	66.8	216.6	737.5
Washington	151.9	10.8	61.2	191.9	712.3
Oregon	151.2	8.3	62.1	225.5	655.4
California	168.1	16.9	69.1	220.9	756.0
Alaska	138.9	†	†	209.6	656.3
Hawaii	122.0	†	†	162.9	516.0

*Adjusted on basis of age distribution of the United States total population, 1940.

†Rates not shown—10 or less deaths.

Source of basic data: Mortality figures from Division of Vital Statistics, National Center for Health Statistics—rates computed in the Health and Safety Education Division of the Metropolitan Life Insurance Company.

Decline in Heart Disease Deaths: Progress and Puzzle

Since the mid-1960s, the age-adjusted death rates from diseases of the heart have fallen by nearly one-third. Although this improvement is gratifying, the reasons behind it remain obscure. It is not at all clear, for example, whether the decline has been accompanied by a corresponding decrease in the incidence of new cases, or whether it is due to improvements in medical care and a lowering of the case fatality rate.

Incidence and Prevalence

Indeed, national estimates of the incidence and prevalence of diseases of the heart have steadily increased since 1968. For example, the National Hospital Discharge Survey reported that the short-stay hospital discharge rate for diseases of the heart for men ages 45 to 64 was 19.4 per 1,000 population in 1965 rising to 34.0 per 1,000 in 1980—an increase of 75 percent. Similar increases were observed for older men and for women.

As reported in the National Health Interview Survey, the prevalence of heart disease at ages 45 to 64 increased from 55 per 1,000 persons in 1960 to 123 per 1,000 persons in 1981—an increase of 124 percent.

The *apparent* increase of heart disease events may be due to a wide variety of factors including improved and earlier diagnosis, more recurrent events, and increased utilization of health services. Likewise, the increased prevalence rates may reflect improved survival, improved patient awareness of their heart conditions, and changes in the survey methodology and questionnaire validity.

Clues to Future Investigation

The information base is meager for quantifying the effects of factors influencing mortality and morbidity. An examination of the geographic variation in heart disease mortality may suggest future avenues of investigation. For example, earlier studies have shown that heart disease mortality by county correlates significantly with the mean altitude of the region, and to a somewhat lesser extent with measures of water hardness. It is not known, however, whether the extremes in variation documented in the accompanying article can be related to differences in availability or quality of medical care, to regional differences in the incidence of disease or to differences in any of the known cardiovascular risk factors such as cigarette smoking, hypertension and elevated serum cholesterol levels.

Improvement Not Uniform

Although all states and regions have shown improvements in heart disease mortality in the last 15 years, the rate of improvement has not been uniform in every area. West Virginia, for instance, in 1970, ranked in the second quartile of states for deaths from heart disease, but in 1980 was the highest ranking state for both men and women ages 35 to 74. Conversely, Connecticut, which in 1970 had heart disease death rates similar to most other Northeastern states, now has the lowest rates in the Northeast, comparable to those in the Mountain states.

Trends such as these are natural experiments in which the epidemiologist can investigate changes in economic conditions and personal life styles, community prevention programs and regional variations.

Monitoring and Further Research

Continued monitoring of heart disease mortality trends, coupled with research into possible influential factors should lead to an improved understanding of what actions will effectively ensure a continued decline in death from diseases of the heart.

To provide more accurate, timely and complete data for monitoring the health trends of the nation, the National Center for Health Statistics will be revising several of its surveys in the next few years. Hopefully, these surveys will be supplemented by expanded data gathered at the state and local levels to provide further insight into what's causing the gratifying decline in coronary heart disease mortality and to explain the regional variations.

Manning Feinleib, M.D., Dr. P.H.
Director
National Center for Health Statistics

CAPSULE BRIEFS

are timely literature selections with broad reader interest.

Horace Greeley Saw It Clearly

Ninety percent of the population growth of 23 million in the United States between 1970-79 occurred in southern and western states. For the first time in U.S. history, the Sun Belt states are home to the majority of Americans. California gained the most (3.7 million). The no-growth states were in the Middle Atlantic and lower New England regions. In the West the population is younger and more highly educated than that of other regions. (*Population Residence and Home Ownership—Data Track 12*, American Council of Life Insurance, January 1984. 1850 K Street, N.W., Washington, D.C. 20006)

What Is (a) Risk?

In public health a *risk* is a straightforward concept based on the probability of an event (e.g., illness or death) resulting from a specific exposure (e.g., ionizing radiation). Generally, however, Americans' attitudes about risk are far more complex, as pollster Lou Harris recently discovered. Government and industry were perceived by those surveyed as demonstrating inadequate concern about consumer risk protection. Most Americans felt they had only limited control over risks: 57 percent said "some or hardly any," while only 34 percent were wholly confident and said they had a "great deal of control." While insurance was viewed as necessary, respondents had mixed feelings about it. (*Journal of Commerce*, February 29, 1984)

Hepatitis Virus and Liver Cancer

The web of evidence linking hepatitis virus (HV) to liver cancer (LC) grows increasingly stronger. In the United States, LC is an uncommon cancer. Worldwide, however, there are at least 250,000 new cases each year. There is extensive evidence of statistical association between HV and LC, but is it biological—i.e., causal—as well? In this review the authors effectively summarize the mounting, increasingly persuasive data that suggest plausible, causal mechanisms, including viral studies in laboratories and also in three animal species. Strategies for prevention are discussed as well as their implications for public health in regions of Asia, the Western Pacific and Sub-Saharan Africa. (M.J.P. Arthur, A.J. Hall, and R. Wright, *The Lancet*: 607-610, March 17, 1984)

Should You Join An HMO?

According to an investigative team in Minneapolis-St. Paul, the answer may depend on how heavily you used health services the previous year. In 11 working populations, medical care use and costs were studied the year before optional health maintenance organizations (HMO) enrollment was offered to the groups. Families enrolling in HMOs had less than 50 percent inpatient hospital days the year before the option was offered (470 vs. 994 per 1,000), than those electing to retain fee for service (FFS care); age-specific analysis further confirmed the finding. The authors suspect self-selection to "be an important determinant of differences in use and costs when comparing HMOs with FFS coverage." (M. Jackson-Beeck and J. H. Kleinman, *JAMA* 250 (20): 2826-2829, 1983)

New Government 'Lemon' List

If you want to avoid buying potentially large medical bills along with a shiny new car, check the recently published federal government list of crash injury test results on 1984 models. It may be helpful to know, for example, that in a few models it's actually much safer to be a passenger than a driver. For example, drivers are expected to fare much better in a Honda Civic CRX two-door sedan, whereas passengers are at lower risk in a Plymouth Colt Vista four-door station wagon. (*Status Report*, Insurance Institute for Highway Safety 19(4):4, 6-7, March 3, 1984)

Could Your Doctor Be A Surplus Specialty?

A recent reexamination of the 1980 estimates of physician surplus by GMENAC (Graduate Medical Educational National Advisory Committee) found some good news (the estimated 1990 physician surplus is now smaller), and some bad news (it's still 62,750 more than required). The problem isn't straightforward, however. Three physician specialty categories were defined: those with anticipated shortages (child and general psychiatry; physical medicine and rehabilitation; emergency and preventive medicine); those in "balance" (12), and those with surpluses (16). A category for which estimates were not made was nuclear medicine. Some "surplus" specialties and their percent of estimated requirement: urology (120), diagnostic radiology (135), orthopedic surgery (135), ophthalmology (140), thoracic surgery (140), obstetrics-gynecology (145), plastic surgery (145), allergy/immunology (145), rheumatology (175), cardiology (190), endocrinology (190), and neurosurgery (190). An accompanying editorial was entitled "A New Physician Supply Policy is Needed." None too soon it would seem. (M. A. Bowman *et al*, *JAMA* 250 (19): 2623-2627, 1983)

Speaking of Operations

Did you know that between 1970 and 1980 nearly one American woman per minute underwent tubal sterilization? According to a federal report, 5,526,000 of those surgeries occurred in that decade. That represented, for the period, 10.5 operations per 1,000 women 15-44 years old. Higher rates were found for black women, who were also slightly younger at time of surgery than whites (29 vs. 30 years). Geographically the higher rates were in the South, lower in the West. (Centers for Disease Control, *CDC Surveillance Summaries* 32 (Suppl. 3): 9SS-14SS, 1983)

An Alcohol Industry Headache

The alcohol industry has recently developed financial problems with significant public health and life style implications. Per capita consumption of most alcoholic beverages, after rising steadily during the 1970s, has leveled off or declined in recent years: liquor (since 1980); beer (down in 1982); wine (much slower growth since 1980). Observers link these changes to increased fitness and self-improvement movements. Further, some believe that public attitudes and behavior toward social drinking may have changed. Drunk driving campaigns by students and others and a new National Commission Against Drunk Driving have also increased public awareness and supported these new drinking trends. (*Wall Street Journal*, March 14, 1984)

GAINS IN U.S. LIFE EXPECTANCY

Life expectation for newborns in the United States reached a new high in 1983. According to preliminary life tables prepared by the Metropolitan Life Insurance Company, expectation of life at birth for the total resident population rose to 74.6 years—an increase of 0.1 years from 1982. The greater longevity was the same for infant boys and girls (0.1 years), rising to 70.9 and 78.3 years, respectively.

In the previous two years the gains in longevity were somewhat greater. Thus, between 1981-1982, the increment in life expectancy at birth was 0.4 years for the total population, 0.5 years for males and 0.3 years for females. Between 1980 and 1981 expectation of life for newborns rose by 0.4 years for the total population, 0.3 years for boys and 0.4 years for girls.

> "Infant death rate fell to a record low of 10.9 per 1,000 live births."

Infant mortality in the United States has been steadily declining since 1962, substantially contributing to the increased longevity. Recently, infant death rates fell to a record low of 10.9 per 1,000 live births in 1983; from 11.2 per 1,000 in 1982, and 11.7 per 1,000 in 1981.

The improvement in expectation of life since 1980 has been aided by the decline in mortality from the major cardiovascular diseases and from accidents, as well as the absence of severe outbreaks of influenza.

From childhood to later years, life expectancy was, for the most part, unchanged from that in 1982. Among males aged 25 and 45, average remaining lifetime in 1983 was 47.9 years and 29.6 years, respectively—exactly the same as in 1982. At age 65, expectation of life in 1983 was 14.5 years, while in 1982 it was 14.4 years.

Among women, in 1983 the number of additional years of life that could be anticipated at ages 25, 45, and 65—namely 54.6, 35.5, and 18.8 years, respectively—did not increase from that recorded in 1982.

Trends in Life Expectancy by Age

The slight increases in life expectancy at birth in recent years do not compare with the rapid gains during the first half of the century. For example, between 1900-02 and 1949-51, expectation of life at birth rose by 18.9 years for both sexes, 17.6 years for boys and 20.3 years for girls. Since 1949-51 the number of additional years of life expected at birth increased by 6.5 years for the total population, 5.4 years for infant males and 7.3 years for newborn females.

However, at ages 35, 45, and 65 the increases in expectation of life since 1949-51 were relatively greater than those in the previous 50 years. Among males aged 35, the average future lifetime in 1983 was 38.7 years, representing a rise of 3.5 years since 1949-51 or an average of about 0.1 year annually. By comparison, between 1900-02 and 1949-51, longevity rose by 4.0 years or an annual average of 0.08 years. The disparity widened with increasing age so that at age 65, the total gain in life expectancy was 1.2 years in the first half of the century compared with 1.7 years thereafter.

> "As fewer young people die from disease-related causes, mortality from the violent causes become a much larger proportion of all deaths."

Among females the same pattern exists. Thus, at age 35 longevity rose by 6.9 years between 1900-02 and 1949-51, and by 5.4 years in the 33 years hence. At age 45 the increments were 5.2 years and 4.9 years, respectively. The absolute gain in future lifetime at age 65 was 3.8 years since 1949-51 and just 2.8 years between 1900-02 and 1949-51. Table 1 presents the expectation of life values by sex and age for the United States

Table 1—Expectation of Life (in years)
United States, by Sex, 1900-02 to 1983

Age	1900-02	1949-51	1959-61	1969-71	1980	1981*	1982*	1983*
0	49.2	68.1	69.9	70.7	73.7	74.1	74.5	74.6
1	55.2	69.2	70.7	71.2	73.7	74.0	74.3	74.5
25	39.1	46.6	47.9	48.4	50.7	50.9	51.3	51.3
35	31.9	37.3	38.5	39.1	41.3	41.6	41.9	41.9
45	24.8	28.5	29.5	30.1	32.1	32.4	32.6	32.6
65	11.9	13.8	14.4	15.0	16.4	16.7	16.8	16.8
0	47.9	65.5	66.8	67.0	70.0	70.3	70.8	71.0
1	54.4	66.7	67.8	67.6	70.0	70.2	70.7	70.8
25	38.4	44.4	45.2	45.1	47.3	47.5	47.9	48.0
35	31.2	35.2	35.9	36.0	38.1	38.3	38.6	38.7
45	24.1	26.6	27.1	27.2	29.1	29.3	29.6	29.6
65	11.5	12.7	13.0	13.0	14.1	14.3	14.4	14.5
0	50.7	71.0	73.2	74.6	77.5	77.9	78.2	78.3
1	56.1	71.8	73.9	75.0	77.4	77.7	78.0	78.0
25	39.9	49.0	50.8	51.8	54.0	54.3	54.6	54.6
35	32.7	39.6	41.3	42.3	44.4	44.7	44.9	44.9
45	25.4	30.6	32.1	33.1	35.0	35.3	35.5	35.5
65	12.2	15.0	15.8	16.8	18.3	18.7	18.8	18.8

Source: 1900-02 to 1982, from the National Center for Health Statistics; 1983 computed by the Health and Safety Education Division of the Metropolitan Life Insurance Company.

*Preliminary

population in selected periods between 1900-02 and 1983.

Life Expectancy Reflects Progress

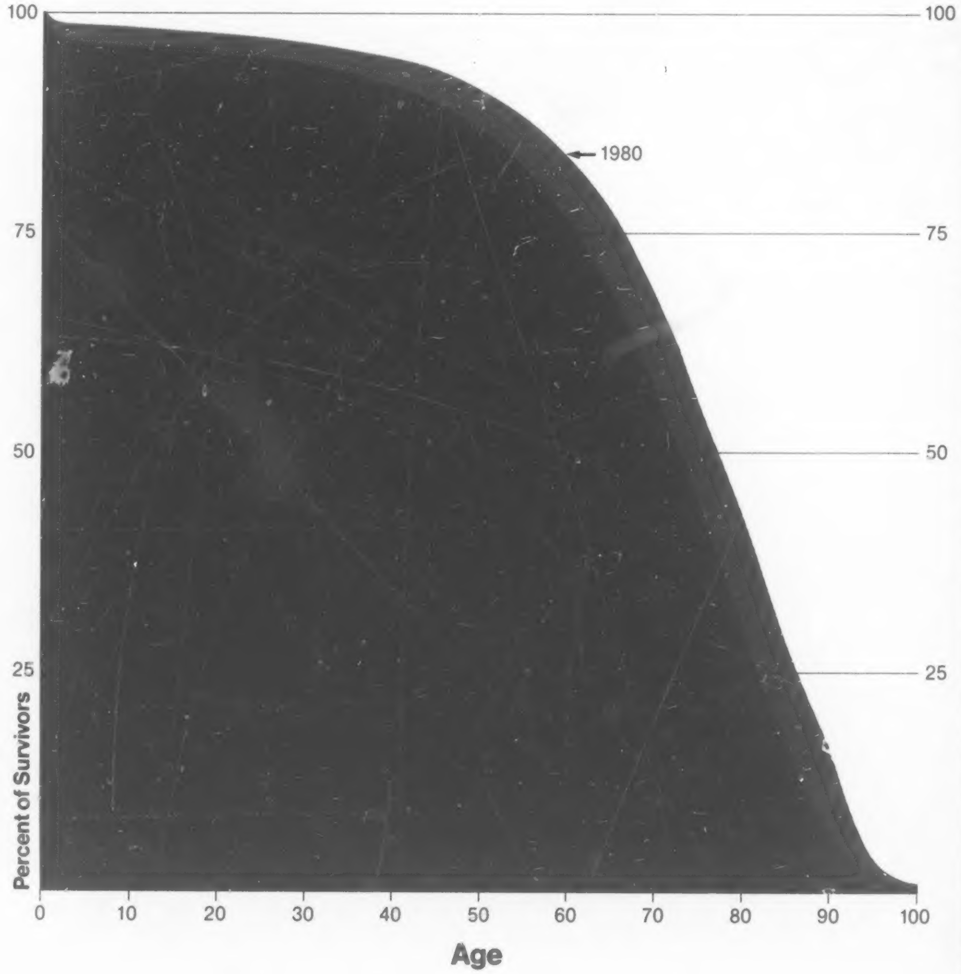
The more favorable life expectancy now enjoyed by Americans reflects the marked rise since the turn of the century in living standards, sanitation and public health administration as well as extraordinary advances in medical science. It was only a few generations ago that infectious diseases took a heavy toll of life in infancy and early childhood, and occasionally flared to epidemic proportions.

The accompanying figure shows the number of survivors from birth to successive ages in 1900-02, 1949-51, and 1980. As may be seen, in 1900-02 about one-fifth of the children died before reaching their 10th birthday, and before reaching 25 years one-fourth were dead from various causes. One-half of the babies born during this period were expected to die by the time they reached age 58 and three-fourths by age 74. Women fared slightly better than men in their survivorship.

By midcentury (1949-51) tremendous improvements in survival had been made. It was not until reaching age 61 that a cohort of newborns

Survivors From Birth To Successive Ages

Total Population, United States, 1900-02, 1949-51, and 1980



Source of basic data: National Center for Health Statistics, United States Life Tables.

was reduced by one-fourth. Further, half of these infants were expected to live to celebrate their 73d birthday and one-fourth were likely to reach 82. After 1949-51 improvement gradually continued. By 1980 three-fourths of the newborn could expect to survive to age 66, one-half to age 77 and one-fourth to age 86.

Violent Deaths on Rise as Diseases Decline

The figure also shows that with the passage of time the survival curve has been progressively taking on a rectangular shape. This is a reflection of the medical and public health improvements made since the turn of the century, which reduced the mortality toll from the communicable, infectious, and chronic diseases and resulted in more Americans surviving to advanced age. As fewer young people have died from disease-related causes of death, the mortality toll from the violent causes of death (accidents, homicides and suicides) have become a much larger proportion of all deaths.

> "Expectation of life at birth was considerably greater for whites than for people of all other races."

In 1980, for example, among people under age 45, 43 percent of all deaths were due to violent causes. During 1950 these causes were responsible for 21 percent of the deaths at ages under 45, while in 1900-02 the relative number was just 6 percent. Whether the appearance of the survival curve will continue to rectangularize or significant future changes in prevention, treatment, or management of the chronic diseases will occur and alter the curve's slope is a matter of conjecture.* At any rate, it is clear that our population is becoming older and it is essential to start planning now for the future implications.

Detailed information on life expectancy and mortality in the United States during 1980 (the latest available) is presented in Table 2. As may be observed, expectation of life at birth was considerably greater for whites than for people of all other races. On the average, white males could expect to live 5.4 years longer than their nonwhite counterparts. Among females, the disparity in favor of whites was 4.5 years.

Females Outlive Males

Females continue to have a significant longevity advantage over males. In 1980 the sex differential at birth was 7.4 years among whites and 8.3 years for persons of all other races. At age 25, white females could expect to outlive white males by 6.7 years, with the corresponding figure among nonwhites being 7.6 years. With advance in age, the differential between the sexes diminished, but was still significant. Thus, at age 45, the sex differential in longevity among whites was 6.0 years and at age 65 it was 4.3 years. Among persons of all other races, the female longevity advantage was 6.1 years at age 45, and 3.8 years at age 65.

A comparison of expectation of life values among males reveals that longevity was more favorable for white men until age 71; thereafter, nonwhite men could expect to live as long or longer. Among females, the average length of life was higher for whites until age 75; then the reverse was true.

The second section of the table shows mortality rates (from which expectation of life figures were calculated). Not surprising, mortality rates for whites remained lower than for nonwhites until age 78 for males, and age 84 for females.

Death rates were less than 1 per 1,000 population at ages 1-35 among white females and at ages 2-22 among females of all other races. For males, mortality rates of this magnitude only existed at ages 2-14 for whites and at ages 3-15 for nonwhites. Death rates remained below 5 per 1,000 through age 46 for white males and age 53 for white females; among nonwhites, rates of this low level only prevailed through age 36 for males and 45 for females.

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*Schneider EL, Brody JA: Aging, Natural Death, and the Compression of Morbidity: Another View. *New England Journal of Medicine*. 309:14, 854-856, Oct. 6, 1983.

Table 2—Expectation of Life and Mortality Rate at Single Years of Age

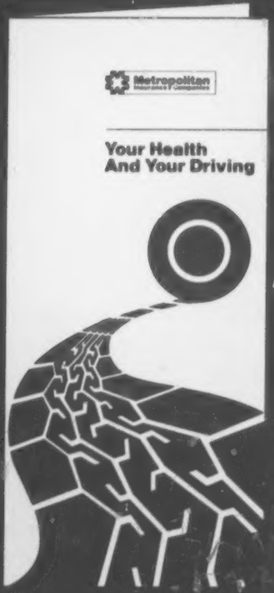
By Race and Sex, United States, 1980

Age	Expectation of Life in Years					Mortality Rate per 1,000				
	Total Persons	White		All Other		Total Persons	White		All Other	
		Male	Female	Male	Female		Male	Female	Male	Female
0	73.7	70.7	78.1	65.3	73.6	12.7	12.3	9.7	20.9	17.6
1	73.7	70.6	77.9	65.7	73.9	.9	1.0	.6	1.3	1.0
2	72.7	69.6	76.9	64.7	73.0	.7	.7	.5	1.1	.8
3	71.8	68.7	76.0	63.8	72.1	.5	.5	.4	.9	.9
4	70.8	67.7	75.0	62.9	71.1	.4	.4	.4	.7	.6
5	69.8	66.8	74.0	61.9	70.2	.4	.4	.3	.6	.5
6	68.9	65.8	73.1	60.9	69.2	.3	.4	.3	.5	.4
7	67.9	64.8	72.1	60.0	68.2	.3	.3	.2	.5	.3
8	66.9	63.8	71.1	59.0	67.2	.3	.3	.2	.4	.3
9	65.9	62.8	70.1	58.0	66.3	.2	.2	.2	.3	.2
10	64.9	61.9	69.1	57.1	65.3	.2	.2	.2	.3	.2
11	64.0	60.9	68.1	56.1	64.3	.2	.2	.2	.3	.3
12	63.0	59.9	67.1	55.1	63.3	.3	.3	.2	.4	.3
13	62.0	58.9	66.2	54.1	62.3	.4	.5	.3	.5	.3
14	61.0	57.9	65.2	53.1	61.3	.5	.7	.3	.7	.3
15	60.0	57.0	64.2	52.2	60.4	.7	1.0	.4	.9	.4
16	59.1	56.0	63.2	51.2	59.4	.9	1.3	.5	1.1	.4
17	58.1	55.1	62.3	50.3	58.4	1.0	1.5	.6	1.3	.5
18	57.2	54.2	61.3	49.3	57.4	1.1	1.7	.6	1.6	.6
19	56.3	53.3	60.3	48.4	56.5	1.2	1.7	.6	1.9	.6
20	55.3	52.4	59.4	47.5	55.5	1.3	1.8	.6	2.3	.7
21	54.4	51.5	58.4	46.6	54.5	1.3	1.9	.6	2.6	.8
22	53.5	50.5	57.4	45.7	53.6	1.4	2.0	.6	2.9	.9
23	52.5	49.6	56.5	44.9	52.6	1.4	2.0	.6	3.0	1.0
24	51.6	48.7	55.5	44.0	51.7	1.4	1.9	.6	3.1	1.0
25	50.7	47.8	54.5	43.1	50.7	1.3	1.8	.6	3.2	1.1
26	49.7	46.9	53.6	42.3	49.8	1.3	1.8	.6	3.2	1.2
27	48.8	46.0	52.6	41.4	48.8	1.3	1.7	.6	3.3	1.2
28	47.9	45.1	51.6	40.5	47.9	1.3	1.7	.6	3.4	1.3
29	46.9	44.2	50.6	39.7	47.0	1.3	1.7	.6	3.5	1.3
30	46.0	43.2	49.7	38.8	46.0	1.3	1.7	.6	3.6	1.4
31	45.1	42.3	48.7	38.0	45.1	1.4	1.6	.7	3.7	1.4
32	44.1	41.4	47.7	37.1	44.2	1.4	1.7	.7	3.9	1.5
33	43.2	40.4	46.8	36.2	43.2	1.4	1.7	.8	4.1	1.6
34	42.2	39.5	45.8	35.4	42.3	1.5	1.8	.8	4.3	1.7
35	41.3	38.6	44.9	34.5	41.4	1.6	1.8	.9	4.5	1.9
36	40.4	37.6	43.9	33.7	40.4	1.7	1.9	1.0	4.7	2.0
37	39.4	36.7	42.9	32.8	39.5	1.8	2.1	1.1	5.0	2.2
38	38.5	35.8	42.0	32.0	38.6	2.0	2.2	1.2	5.3	2.4
39	37.6	34.9	41.0	31.2	37.7	2.1	2.4	1.3	5.6	2.7

40	36.7	34.0	40.1	30.3	36.8	2.3	2.6	1.4	6.0	3.0
41	35.7	33.0	39.1	29.5	35.9	2.5	2.8	1.6	6.4	3.3
42	34.8	32.1	38.2	28.7	35.0	2.8	3.1	1.7	6.9	3.6
43	33.9	31.2	37.3	27.9	34.2	3.0	3.4	1.9	7.5	4.0
44	33.0	30.3	36.3	27.1	33.3	3.4	3.8	2.1	8.1	4.3
45	32.1	29.4	35.4	26.3	32.4	3.7	4.2	2.3	8.8	4.7
46	31.3	28.6	34.5	25.6	31.6	4.0	4.6	2.6	9.6	5.1
47	30.4	27.7	33.6	24.8	30.7	4.4	5.2	2.8	10.4	5.6
48	29.5	26.8	32.7	24.1	29.9	4.9	5.7	3.1	11.4	6.0
49	28.7	26.0	31.8	23.3	29.1	5.4	6.4	3.4	12.4	6.5
50	27.8	25.2	30.9	22.6	28.3	5.9	7.1	3.8	13.4	7.0
51	27.0	24.3	30.0	21.9	27.5	6.5	7.8	4.1	14.5	7.6
52	26.1	23.5	29.1	21.2	26.7	7.1	8.6	4.5	15.7	8.2
53	25.3	22.7	28.2	20.6	25.9	7.7	9.5	4.9	16.8	8.8
54	24.5	21.9	27.4	19.9	25.1	8.4	10.4	5.3	18.0	9.5
55	23.7	21.2	26.5	19.3	24.4	9.1	11.4	5.8	19.2	10.2
56	22.9	20.4	25.7	18.6	23.6	9.9	12.4	6.3	20.5	10.9
57	22.2	19.6	24.8	18.0	22.9	10.7	13.6	6.9	21.9	11.7
58	21.4	18.9	24.0	17.4	22.1	11.7	14.9	7.5	23.4	12.7
59	20.6	18.2	23.2	16.8	21.4	12.7	16.3	8.2	25.1	13.6
60	19.9	17.5	22.4	16.2	20.7	13.8	17.8	9.0	26.8	14.7
61	19.2	16.8	21.6	15.7	20.0	15.0	19.3	9.8	28.6	15.9
62	18.5	16.1	20.8	15.1	19.3	16.3	21.1	10.7	30.5	17.0
63	17.8	15.4	20.0	14.6	18.6	17.7	23.1	11.6	32.3	18.1
64	17.1	14.8	19.2	14.0	18.0	19.2	25.2	12.6	34.2	19.2
65	16.4	14.2	18.5	13.5	17.3	20.8	27.5	13.7	36.2	20.4
66	15.7	13.6	17.7	13.0	16.7	22.4	30.0	14.9	38.3	21.6
67	15.1	13.0	17.0	12.5	16.0	24.3	32.6	16.2	40.6	23.2
68	14.4	12.4	16.2	12.0	15.4	26.3	35.4	17.7	43.1	25.1
69	13.8	11.8	15.5	11.5	14.8	28.5	38.5	19.4	45.8	27.4
70	13.2	11.3	14.8	11.1	14.2	30.9	41.8	21.2	48.7	29.9
71	12.6	10.7	14.1	10.6	13.6	33.5	45.4	23.2	51.7	32.5
72	12.0	10.2	13.5	10.2	13.0	36.3	49.1	25.4	54.9	35.1
73	11.5	9.7	12.8	9.7	12.5	39.2	53.1	27.9	58.1	37.5
74	10.9	9.3	12.2	9.3	12.0	42.3	57.4	30.7	61.5	39.8
75	10.4	8.8	11.5	8.9	11.4	45.7	61.9	33.7	65.0	42.2
76	9.9	8.3	10.9	8.5	10.9	45.5	66.9	37.2	68.8	45.0
77	9.3	7.9	10.3	8.1	10.4	53.6	72.2	41.0	73.1	48.1
78	8.9	7.5	9.7	7.7	9.9	58.2	78.1	45.2	77.9	51.9
79	8.4	7.1	9.2	7.3	9.4	63.3	84.5	50.0	83.3	56.2
80	7.9	6.7	8.6	6.9	9.0	69.0	91.5	55.6	89.4	61.1
81	7.5	6.3	8.1	6.5	8.5	75.5	99.2	61.9	96.2	66.7
82	7.0	6.0	7.6	6.2	8.1	82.9	107.5	69.4	103.9	73.0
83	6.6	5.6	7.1	5.8	7.7	91.4	116.6	78.2	112.6	79.9
84	6.2	5.3	6.7	5.5	7.3	101.3	126.4	88.9	122.4	87.6
85	5.9	5.0	6.3	5.3	7.0					

Source: National Center for Health Statistics

Topical Health and Safety Education Materials Available from Metropolitan



Metropolitan
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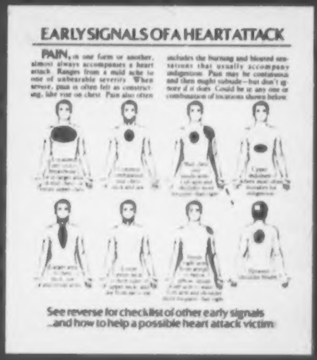
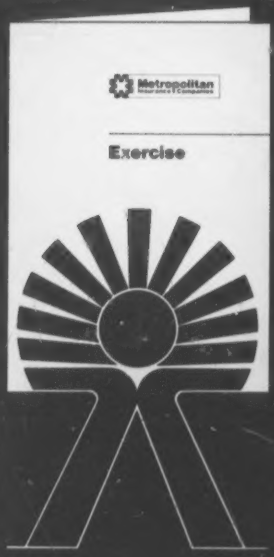

EARLY SIGNALS OF A HEART ATTACK

PAIN, in one form or another, almost always accompanies a heart attack. Ranges from a mild ache to one of unbearable severity. When severe, pain is often felt as constricting, like vise on chest. Pain also often includes the burning and bloated sensations that usually accompany indigestion. Pain may be continuous and then might subside—but don't ignore it if it does. Could be at any one or combination of locations shown below.

See reverse for checklist of other early signals ...and how to help a possible heart attack victim



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Drugs Prescribed in Physicians' Offices for Specific Conditions

State Population Projections by Age

Chances of Dying from the Leading Causes of Death

Mortality from Cirrhosis: Regional Variations

Geographic Disparities in Growth of School-Age Population: 1980-2000

Accident Mortality of Infants Under One Year

HISTORICAL PERSPECTIVES

50 YEARS AGO

IN THE **1934** STATISTICAL BULLETIN

Firearms accidents took a heavy toll of life. About 3,000 persons died as the result of careless use of guns. Adult males accounted for around three-fourths of the deaths; children under 15 constituted about one-fifth; and women of all ages made up less than one-tenth of the total. A major contributing factor was the availability of firearms among our (then) large farm population. (Page 3, November)

Half a century of warfare against typhoid fever was reviewed. It was noted that although typhoid fever was one of the first diseases whose bacterial origin was proven, it took a number of years before an effective national program was instituted to combat it. By 1934 the disease was considered a rare cause of death in the more progressive sections of the United States. Moreover, it was felt that modern medicine and sanitary science had conquered typhoid fever, so that its occurrence was considered to be due only to culpable negligence on the part of the locality in which it was found. The history of the disease in Chicago was examined. (Page 1, September)

The Dionne quintuplets were born in Canada, and Metropolitan statisticians reported on the chances of multiple births and the actual experience in the United States and selected countries. In the United States during 1926-1930, there was one pair of twins per 86 confinements, one set of triplets per 8,745 confinements, and one set of quadruplets per 552,000 confinements. There were no quintuplets among the approximately 10 million children born in this period, the probability of this event's occurring was calculated as one set in 57 million confinements. (Currently, the use of fertility drugs has greatly increased the chances of multiple births—ed.) (Page 1, July)

It was hoped that control of tuberculosis was in sight. Since the beginning of the century, the marked decrease in mortality from tuberculosis was hailed as the outstanding achievement of the country's public health program. Recent percentage declines in death rates by states were presented and the significant geographic variations were noted. Despite the gains that were made, tuberculosis was still one of the principal causes of death at the early adult ages. It was urged that the antituberculosis campaign concentrate more of its efforts on this vulnerable age group. (In 1934 the death rate per 100,000 from tuberculosis was 56.7; in 1982 the rate was 0.9—ed.) (Page 6, December)

Increasing automobile use and rising fatality rates were discussed. There were indications that the number of fatalities resulting from automobile accidents would reach a new record—over 34,000. (It did—ed.) Civic agencies and individuals were urged to make concerted efforts to control this increasing hazard. (Page 7, May)

The probability that a child would become an orphan before reaching age 17 decreased significantly (but was still high compared with current experience—ed.). Reduced mortality among parents—especially mothers—was given as the reason. (The period was between 1920 and 1929-31.) Throughout the entire range of the parent's age, the chance of the mother's dying was substantially less than that of the father. It was pointed out that one of the benefits of the mortality improvement was the easing of the heavy child-care burden placed on communities. (Page 7, August)

SB-1 (7-84) Printed in U.S.A.

B6095-1

SB
STATISTICAL BULLETIN

Vol 65 No 4

Oct-Dec 1984

2 **Growth of School-Age Population.** Plus an editorial by Anthony S. Earl, Governor of Wisconsin, who makes a strong plea for health promotion in the nation's educational policy

12 **Drug Therapy in Office Visits to Physicians.** An analysis that sheds new light on medication usage patterns in office-based doctor visits

22 **Regional Variations in Mortality From Cirrhosis of the Liver.** Recent data reveal where in the United States cirrhosis risks seem to be lowest and highest for men and women

Metropolitan Insurance Companies

Contents

Statistical Bulletin No 4, Oct-Dec 1984

1 From the Editor's Desk

2 Growth of School-Age Population

10 Survey Reveals Concerns/Attitudes of Teachers

11 Why Health Education Must Be in Our Nation's Educational Policy
Anthony S. Earl, Governor of Wisconsin

12 Drug Therapy in Office Visits to Physicians

20 Capsule Briefs

22 Regional Variations in Mortality from Cirrhosis of the Liver

29 Index

Back Cover/Historical Perspectives

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Postage paid at New York, N.Y. Postmaster: send address changes to above address.

Letters will be published at the discretion of the editor as space permits and subject to editing and abridgment. They should be typewritten double-spaced. Send to:
Statistical Bulletin, 16UV
Metropolitan Life Insurance Company,
One Madison Avenue, New York, N.Y. 10010

From the Editor's Desk

Next time you pass a typical neighborhood elementary school, ask yourself a question: In 15 years, how readily will it assimilate a student body that is 10 percent larger? The gist of that question emerges from a study by Metropolitan Life Insurance Company and is reported in this issue of *SB*. Your local school district's tax and management problems aside, the likelihood of such growth after the recent 15-year period of contraction in school attendance, raises potentially important new issues about teachers, teaching, and the opportunities to improve learning for today's children/tomorrow's adults.

As Wisconsin's Governor Anthony Earl reminds us in his accompanying editorial, the school environment can be critical to help children master selected skills for responsible health behavior. Can we as a nation respond to this challenge, and make health behavior education in schools the firm base upon which our nation's future health can stand? The health statistical indicators of the year 2039 (when today's kindergarteners will be 55 years old) should reflect the extent to which the Governor's words could become prophetic.

"Nuclear winter" is a chilling term that will be heard increasingly as the United States debates the use of nuclear weapons as the principal deterrent in national defense. In *Capsule Briefs, SB* abstracts two recent references on this important subject for readers seeking more information. The articles report the statistically estimated effects of many simultaneous nuclear weapons' detonations. The main conclusion is that catastrophic results would occur even for a war's "winner," because of the expected, voluminous worldwide atmospheric soot and dust pollution, the direct aftermath of multiple nuclear explosions.

Did you ever realize how many therapeutic drugs are dispersed in the United States each year? Or the dollars involved in their purchase? It is a subject of gargantuan proportions when analyzed as *SB* does this issue. The article provides a small window on the one part of that complex subject called medical care. Medication usage patterns are not an easy subject to master, but we hope you will be helped to understand its more important dimensions as a result of our report.

Finally, a subject that is not often analyzed: deaths from cirrhosis of the liver, as part of our continuing examination of regional health in the United States. Do you know, for example, in which parts of the United States cirrhosis risk seems lowest? Or highest? A disease strongly statistically associated with heavy alcohol consumption, cirrhosis is one of the 10 leading causes of death in the United States at this time.

This study is another reminder that there are grim, long-term consequences to drug and alcohol abuse which can originate in childhood. Thus, there is a continuing need to analyze preventive educational programs and their effectiveness. If my last comment seems familiar, it is. I'm back near where I started.

See you next issue.

Charles B Arnold

The Statistical Bulletin will publish comment and criticism from readers about its contents. Alternate interpretations of data analyses or different points of view about subjects are particularly welcome. Use address at end of publisher's statement, opposite page.

GROWTH OF SCHOOL-AGE POPULATION

The school-age population in the United States will increase by an estimated 5 million children by the year 2000, according to a recently completed study by the Statistical Bulletin. This projected growth, if realized, will require policymakers to review many educational policies. (See Guest Editorial on page 11.)

In July 1983 there were 48,100,000 children aged 4-17 in the United States or about 2¼ million less than in 1980. However, projections indicate that in the forthcoming years, the school population will grow rapidly. Since the middle 1970s, the annual number of births has been rising steadily and, although there was a slight decline in 1983, the total is not expected to peak until the late 1980s. This is a reflection of the large number of women born during the baby boom years who have had, and are likely to continue having, children. Thus, by the turn of the century, there may be about 53,400,000 youngsters 4-17 years of age, placing a great strain on schools unprepared for the influx and having a concomitant impact on the business community. After the year 2000, the number of children is expected to decline slowly, falling to 50,700,000 by 2050.

> "In forthcoming years, projections indicate that the school population aged 4-17 will grow rapidly."

Divergent Trends for Different Age Groups

Several divergent trends exist in the outlook for growth of the school-age population as can be seen in Table 1. In the immediate years ahead, the number of children aged 4-12 will rise significantly. Increases in children 4 and 5 years of age will be the most rapid—their number is expected to rise by 15.5 percent between 1983 and 1990. At the same time, the number of youngsters aged 6-12 is expected to grow from 23,126,000 to 25,090,000 or by 8.4 percent. Yet, the number of teenagers is likely to decline substantially. Between 1983 and 1990 the number of youths 13-17 years of age will fall from 18,377,000 to 16,236,000 or by 11.7 percent.

In the succeeding decade it is projected that there will be vigorous growth in the high school-aged population—their total will increase to 19,290,000 in 2000 or by 18.8 percent. The marked increase in the number of youths 13-17 years of age is a result of the aging of the elementary school population, whose own total is likely to continue to expand by 6.9 percent. Thereafter, the number of children in these school categories will gradually diminish. In contrast, by 2000 the vast majority of women born after World War II will have completed their families so that, not unexpectedly, the number of children aged 4 and 5 will have peaked earlier. Figure A shows how the relative proportions of the school-age population will have changed between 1983 and 2000.

> "In 2050, 16 percent of the U.S. population is expected to be 4-17 years of age."

As may be ascertained from the center tier of Table 1, in 1983 the number of children aged 4-17 constituted 21 percent of the resident population. The projections by the Bureau of the Census reveal that by 1990 the relative proportion of the population at the primary school ages will decline to 20 percent and is likely to remain at this level in 2000. In 2050 just 16 percent of the U.S. population is expected to be 4-17 years of age.

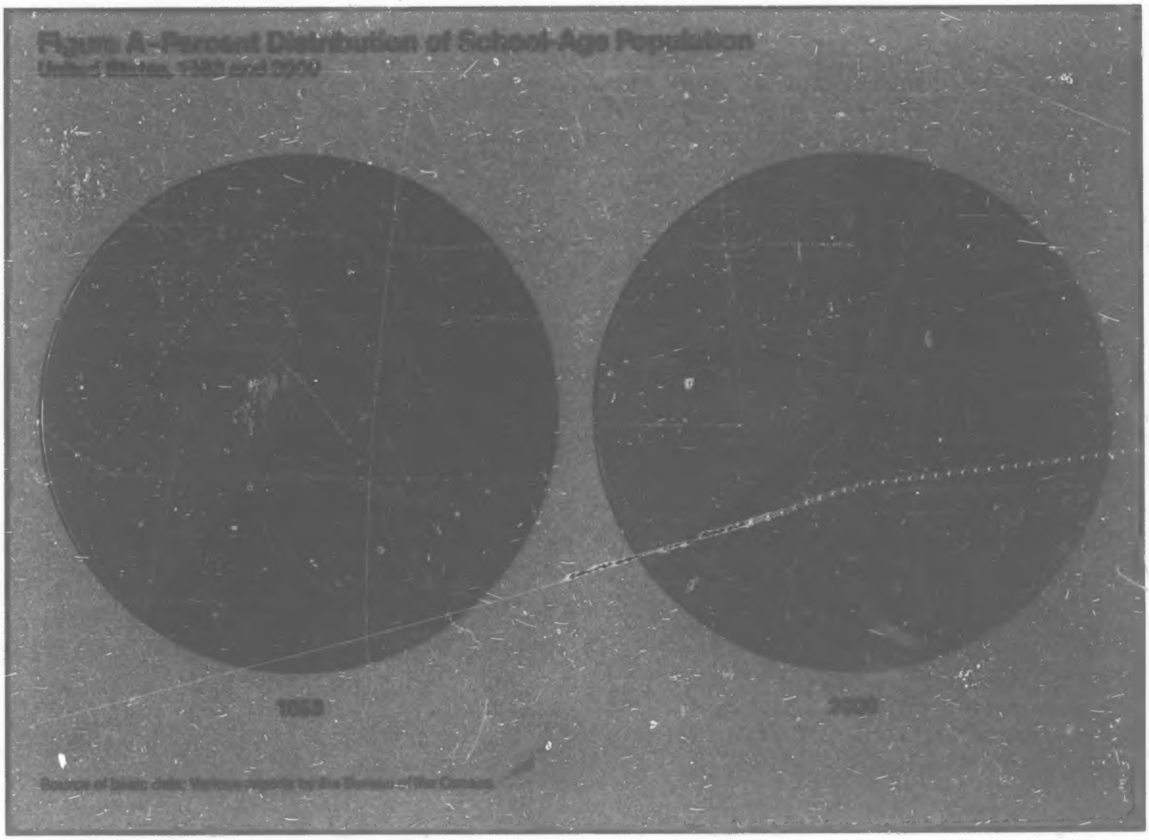


Figure A—Percent Distribution of School-Age Population
United States, 1983 and 2000

Source of basic data: Various reports by the Bureau of the Census.

Changes Will Vary by Region:
Decline in Northeast, Growth in West

For the country as a whole, between 1980 and 1990, the population aged 5-19 is expected to decrease by 6.8 percent. However, Table 2 shows that there is a substantial disparity in the relative changes at these ages among the four geographic regions of the nation. The decline is likely to be about 2 percent in the South, 12 percent in the North Central region, and 21 percent in the Northeast; on the other hand, in the West the outlook indicates a gain of 8 percent.

Concealed within these figures is the likelihood of an 11.4 percent national increase in the number of children aged 5-9. Moreover, the number of these youngsters in the Northeast will decline by 5.3 percent while those in the West will rise by 34.6 percent. In addition, the number of children 10-14 years of age living in the West will increase by 7.7 percent in comparison to decreases in the other three geographic areas. Apparently then, the impact of the rise in the number of kindergarten and elementary school children will be more significant in some areas of the country than in others. With regard to the number of persons 15-19 years of age, each of the geographic regions of the country is expected to record a significant decline during the current decade. A graphic presentation of the changing regional patterns is presented in Figure B.

On a state-by-state basis, the projected changes in the number of children and teenagers during the current decade is likely to be most dramatic in Utah and Wyoming. The population aged 5-19 in each of these states will increase by about 50 percent. The other states constituting the

Table 1—School-Age Population
United States, 1970-83 and Projections to 2050

Year, July 1	All Ages	Age Group 4-5	 6-12	 13-17
[illegible]				
1970	203,984	7,312	28,740	20,096
1980	227,202	6,303	24,277	19,759
1983	233,981	6,601	23,136	18,377
1990	249,211	7,622	25,090	16,236
2000	267,470	7,240	26,826	19,290
2025	300,502	7,291	26,101	18,644
2050	308,336	7,136	25,337	18,232
[illegible]				
1970	100.0	3.6	14.1	9.9
1980	100.0	2.8	10.7	8.7
1983	100.0	2.8	9.9	7.9
1990	100.0	3.1	10.1	6.5
2000	100.0	2.7	10.0	7.2
2025	100.0	2.4	8.7	6.2
2050	100.0	2.3	8.2	5.9
[illegible]				
1970-80	11.4	−13.8	−15.5	− 1.7
1983-90	6.5	15.5	8.4	−11.7
1990-2000	7.3	− 5.0	6.9	18.8
2000-2025	12.3	.7	− 2.7	− 3.3
2025-2050	2.6	− 2.1	− 2.9	− 2.2
1983-2000	14.3	9.7	15.9	5.0
1983-2050	31.8	8.1	9.5	− .8

Source of basic data: Various reports by the Bureau of the Census.

Mountain division will also experience a rise in the number of persons at these ages, although in New Mexico and Montana the increment will be very small. Additionally, with the exception of Hawaii, all of the states in the Pacific division are likely to record a gain in the school-age population, although in California – our most populous state – the increase will be just about 1 percent. Elsewhere in the nation only Texas, Florida and Oklahoma are expected to experience an increase in the number of persons aged 5-19 during the 1980-1990 decade. During this period the largest relative decrease is expected to occur in the District of Columbia – namely 40 percent. Decreases of about half this magnitude may occur in each of the Middle Atlantic states and in Massachusetts, Rhode Island, Connecticut and Maryland.

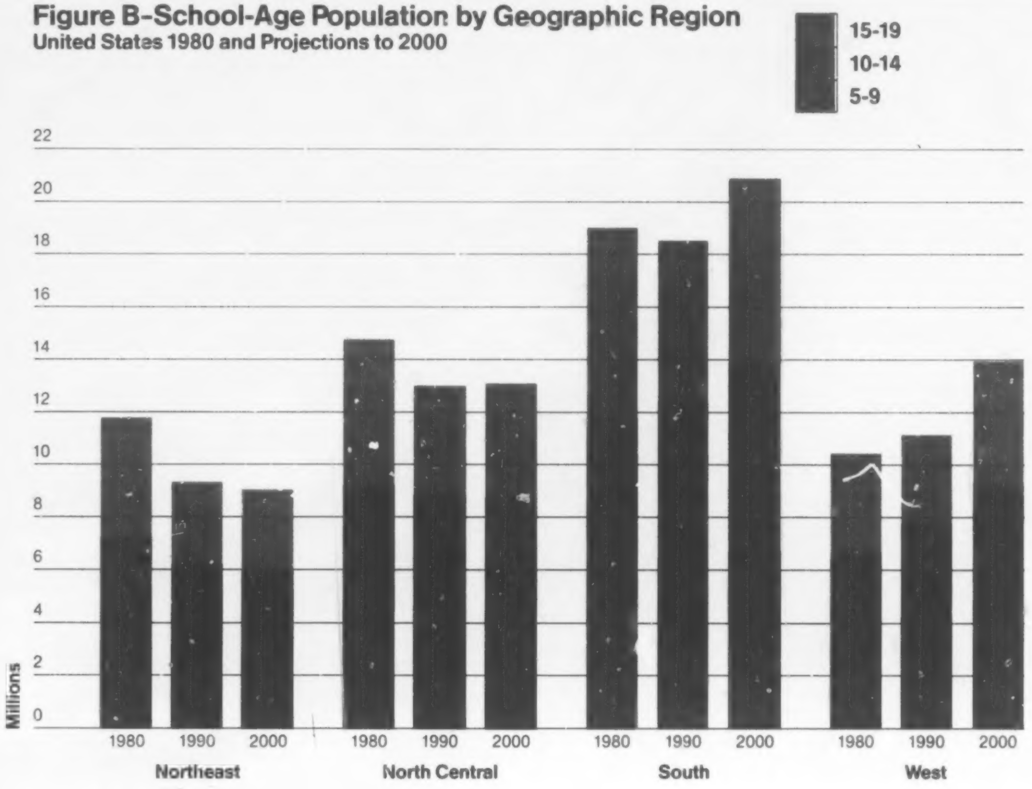
Table 2—School-Age Population, by Geographic Region

United States, 1980-2000

	Population (1,000s)			Percent Change		
Age Group	April 1980	July 1990	July 2000	1980-90	1990-2000	1980-2000
5-19	56,100	52,271	57,165	– 6.8	9.4	1.9
5-9	16,697	18,600	18,758	11.4	.8	12.3
10-14	18,241	16,776	19,519	– 8.0	16.4	7.0
15-19	21,162	16,895	18,888	–20.2	11.8	–10.7
5-19	11,804	9,287	8,995	–21.3	– 3.1	–23.8
5-9	3,331	3,155	2,888	– 5.3	– 8.5	–13.3
10-14	3,950	2,990	3,127	–24.3	4.6	–20.8
15-19	4,523	3,142	2,980	–30.5	– 5.2	–34.1
5-19	14,836	13,005	13,165	–12.3	1.2	–11.3
5-9	4,427	4,635	4,302	4.7	– 7.2	– 2.8
10-14	4,803	4,208	4,519	–12.4	7.4	– 5.9
15-19	5,606	4,162	4,344	–25.8	4.4	–22.5
5-19	19,029	18,699	21,052	– 1.7	12.6	10.7
5-9	5,778	6,553	6,886	13.4	5.1	19.2
10-14	6,133	5,967	7,167	– 2.7	20.1	16.9
15-19	7,118	6,179	7,009	–13.2	13.4	– 1.5
5-19	10,431	11,281	13,944	8.1	23.6	33.7
5-9	3,161	4,256	4,682	34.6	10.0	48.1
10-14	3,355	3,612	4,706	7.7	30.3	40.3
15-19	3,915	3,413	4,556	–12.8	33.5	16.4

Source of basic data: Bureau of the Census, Current Population Reports, Series P-25, No. 937.

Figure B-School-Age Population by Geographic Region
United States 1980 and Projections to 2000



Source: Table 2.

In '80s, Greatest Change for Group Aged 5-9
Between 1980 and 1990 the outstanding demographic change that is expected to occur in the outlook for growth of the school-age population is the increase in the number of children aged 5-9. Marked gains are anticipated in the Mountain division—especially in Wyoming, Nevada and Utah. Substantial increases are expected in the remaining states of the division, as well as in the states comprising the Pacific division of the country. In addition, relative increases of at least one-fifth will probably occur in Texas, Florida, Louisiana and Oklahoma. On the other hand, 11 areas of the country may have fewer children aged 5-9 residing within their borders in 1990 than in 1980. The largest decline is expected in the District of Columbia; in the other areas, the relative decreases will be only slightly more than 5 percent in New York, Rhode Island and Massachusetts.

> "The number of youngsters 5-9 years old in the Northeast will decline by 5.3 percent while those in the West will rise by 34.6 percent."

Table 3—Projected Changes in Population Aged 5-19

United States, 1980-2000

	Numbers in Thousands 1980				Percent Change							
					1980-1990				1990-2000			
Area	5-19	5-9	10-14	15-19	5-19	5-9	10-14	15-19	5-19	5-9	10-14	15-19
UNITED STATES	56,100	16,697	18,241	21,162	−6.8	11.4	−8.0	−20.2	9.4	0.9	16.3	11.8
NEW ENGLAND	3,011	832	1,006	1,173	−20.5	−2.2	−24.9	−29.8	1.7	−4.0	11.6	−1.8
Maine	286	84	94	107	−10.8	1.2	−11.1	−20.0	4.1	1.4	10.0	1.0
New Hampshire	233	68	77	88	−1.7	18.5	−6.6	−13.0	22.5	15.1	35.3	18.3
Vermont	132	38	43	51	−9.9	10.3	−13.1	−22.2	10.9	2.6	20.8	10.3
Massachusetts	1,384	375	461	548	−24.7	−6.0	−29.6	−33.3	−2.4	−8.2	7.9	−5.9
Rhode Island	226	62	74	90	−23.5	−7.0	−27.6	−31.4	−2.2	−7.2	8.6	−7.0
Connecticut	751	206	256	288	−23.4	−4.5	−28.2	−32.8	−1.2	−7.1	8.5	−4.3
MIDDLE ATLANTIC	8,793	2,499	2,944	3,350	−21.6	−6.3	−24.1	−30.8	−4.8	−10.0	2.2	−6.3
New York	4,189	1,185	1,406	1,598	−23.7	−8.6	−26.2	−32.7	−7.3	−12.2	−.6	−8.8
New Jersey	1,785	509	606	671	−20.0	−3.9	−23.3	−29.3	−.4	−5.3	8.4	−3.9
Pennsylvania	2,818	805	932	1,081	−19.4	−4.4	−21.5	−28.9	−4.2	−10.0	2.3	−4.5
EAST NORTH CENTRAL	10,599	3,175	3,454	3,970	−14.0	1.3	−14.8	−25.5	−.2	−7.5	6.4	1.1
Ohio	2,716	822	887	1,008	−15.9	−3.3	−16.6	−25.5	−3.6	−9.9	3.1	−3.5
Indiana	1,418	433	455	530	−11.9	−.5	−11.1	−22.0	−.2	−5.4	5.9	−.7
Illinois	2,834	849	918	1,066	−13.2	5.3	−14.3	−27.0	.8	−8.3	7.3	4.8
Michigan	2,429	727	802	900	−15.9	−2.8	−17.6	−25.1	−1.8	−7.5	5.5	−2.9
Wisconsin	1,204	345	392	467	−10.1	13.2	−10.3	−27.1	7.3	−3.0	13.6	12.7
WEST NORTH CENTRAL	4,237	1,252	1,349	1,636	−8.2	13.3	−6.3	−26.3	4.7	−6.5	9.8	12.5
Minnesota	1,030	296	334	400	−9.6	16.7	−9.6	−29.0	7.9	−4.8	14.9	16.0
Iowa	720	211	232	278	−9.2	13.0	−7.4	−27.5	3.7	−7.0	7.6	12.3
Missouri	1,199	356	382	461	−10.3	7.6	−8.9	−25.2	2.7	−6.9	8.9	7.1
North Dakota	164	49	51	64	−4.6	16.9	2.0	−26.4	2.8	−8.4	3.8	15.3
South Dakota	176	53	54	69	−5.9	18.0	−.7	−28.3	3.6	−9.6	7.0	16.5
Nebraska	386	118	121	147	−5.2	13.4	−1.3	−23.3	4.6	−6.3	9.5	12.4
Kansas	562	169	175	218	−4.0	17.4	−.2	−23.7	5.1	−6.9	8.2	16.1

SOUTH ATLANTIC	9,046	2,681	2,939	3,426	−6.3	7.8	−8.3	−15.5	10.7	4.7	19.5	8.5
Delaware	151	42	49	60	−16.6	5.7	−18.6	−30.8	3.7	−5.8	12.8	5.3
Maryland	1,054	293	357	405	−18.8	3.7	−23.8	−30.8	3.1	−5.5	12.3	3.5
District of Columbia	136	37	42	58	−40.3	−24.1	−46.3	−46.3	−22.4	−28.5	−13.7	−23.3
Virginia	1,324	388	431	506	−10.4	4.3	−12.6	−19.7	4.9	−.9	12.2	4.0
West Virginia	485	153	158	174	−6.0	.1	−3.7	−13.4	−1.4	−4.1	.1	−.1
North Carolina	1,495	447	482	566	−11.4	−4.9	−12.7	−15.4	−.3	−1.3	5.8	−4.7
South Carolina	836	254	266	317	−5.8	4.8	−6.6	−13.6	5.3	1.4	10.2	4.5
Georgia	1,447	447	470	531	−5.8	6.0	−8.9	−13.0	7.7	1.8	16.3	5.8
Florida	2,117	621	685	811	8.6	27.4	7.2	−4.6	30.5	21.1	44.3	26.9
EAST SOUTH CENTRAL	3,818	1,172	1,226	1,420	−5.1	5.9	−4.6	−14.6	5.4	.3	10.7	5.6
Kentucky	946	289	302	354	−3.0	7.0	−.0	−13.7	6.3	2.7	9.7	6.6
Tennessee	1,150	350	370	430	−5.8	5.0	−6.1	−14.3	5.4	.8	10.9	4.8
Alabama	1,018	314	328	376	−6.8	4.5	−7.3	−15.8	3.8	−1.9	9.4	4.3
Mississippi	704	219	226	259	−4.1	8.1	−4.2	−14.4	6.5	−.8	13.5	7.6
WEST SOUTH CENTRAL	6,165	1,926	1,968	2,272	7.0	25.8	6.9	−8.9	19.1	8.0	26.0	24.9
Arkansas	580	180	186	214	−1.4	7.8	2.0	−12.1	7.0	3.2	10.4	7.4
Louisiana	1,144	346	372	426	−.9	22.4	−2.4	−18.5	12.4	.9	17.5	21.3
Oklahoma	739	230	231	279	6.5	22.2	10.9	−10.0	15.3	5.2	20.6	21.2
Texas	3,702	1,170	1,180	1,352	10.8	30.3	9.7	−5.2	23.3	11.0	31.8	29.2
MOUNTAIN	2,910	917	926	1,067	21.2	42.8	25.5	−1.1	33.1	21.3	38.7	41.7
Montana	197	60	63	75	.7	19.4	7.8	−20.5	8.8	−1.0	10.8	18.2
Idaho	250	83	79	88	28.3	44.0	37.2	5.3	27.6	18.0	26.0	42.0
Wyoming	119	39	37	43	47.7	82.2	53.0	11.4	53.3	30.7	60.1	79.0
Colorado	708	213	226	269	10.4	31.8	12.9	−8.7	25.2	14.2	32.3	30.4
New Mexico	355	109	114	132	1.7	24.2	4.2	−19.0	14.9	4.1	20.2	22.8
Arizona	683	211	220	252	22.1	42.0	23.7	3.9	40.0	29.5	51.0	40.7
Utah	411	146	126	139	50.8	63.7	66.9	22.6	40.1	27.3	38.3	60.3
Nevada	187	56	62	70	26.1	64.5	19.3	1.7	57.6	39.8	75.0	62.4
PACIFIC	7,522	2,244	2,429	2,849	3.1	31.3	.9	−17.2	19.3	5.0	26.3	29.8
Washington	987	296	322	369	6.7	34.4	4.9	−14.0	22.1	6.2	31.0	32.7
Oregon	618	189	203	226	14.8	37.7	17.1	−6.6	24.6	11.5	28.3	36.7
California	5,577	1,650	1,796	2,130	1.2	30.4	−1.6	−19.0	18.1	3.6	25.3	28.9
Alaska	106	35	34	37	11.1	41.0	7.3	−13.5	27.2	17.3	33.8	35.0
Hawaii	235	73	75	87	−2.3	17.8	−4.8	−17.1	13.0	7.0	18.2	14.9

Note—Figures have been independently rounded; hence, totals may not equal the sum of the parts.

Source of basic data: Bureau of the Census, Current Population Reports, Series P-25, No. 937.

As mentioned earlier, three of the four geographic regions of the nation are anticipated to contain fewer children aged 10-14 in 1990—the West being the exception. Further analysis reveals that even within this region sharp percentage differences will also occur. For instance, as a group, the Pacific states will only record a 0.9 percent increase, whereas the relative gain in the Mountain states will be 25.5 percent. Moreover, in California and Hawaii, small decreases are expected in comparison to marked gains in Utah, Wyoming and Idaho.

Regarding the population aged 15-19, only five states are expected to show any gain. Moreover, they are all contained within the Mountain division of the country. Utah is expected to record a gain of 22.6 percent and Wyoming an increase of 11.4 percent. Lesser increases will occur in Idaho, Arizona and Nevada.

> "Between 1980 and 1990, the outstanding demographic change is the expected growth in the number of children aged 5-9."

Table 3 shows the details of the changes of the school-age population by state for the decades of the 1980s and 1990s. It is extremely important to note that the preceding analysis is based on population projections with the underlying migration assumption that the 1970-1980 rates of net migration by age for each state continue unchanged. Thus, whereas the projection for the nation as a whole will most likely be unaffected, continued usage of past state migration trends may not be realistic for state purposes—some recent data for the early 1980s indicate different migration shifts. However, the study intends to provide guidelines for future planning and, as long as the figures are used with caution, they should be very helpful.

Survey Reveals Concerns/Attitudes of Teachers

The educational concerns of teachers were learned from a recent survey of 1,981 elementary and secondary public school teachers conducted by Louis Harris and Associates and sponsored by Metropolitan Life Insurance Company.

Primary objectives of the survey were to discover how teachers define the seriousness of problems described by various commissions and reports; their willingness to accept and implement reforms; how they assess their own schools and jobs; their willingness to accept new standards and methods of accountability; how they assess the role of the federal government.

Results show that teachers want to be at the forefront of change in the public school system and are willing to make sacrifices to help achieve major reforms. Teachers love to teach, even though they feel underpaid and burdened with excessive administrative work. Generally they feel a lack of parental and community support, and the lack of government funding. A majority of teachers are in favor of stricter standards for students as well as for themselves. They favor periodic retesting of themselves and are willing to submit to criticism by their peers and administrators to improve the system.

Specifically, this study shows that teachers...

- favor tighter graduation requirements
- support student minimum competency tests
- support career ladders, allowing teachers to assume greater responsibility for more pay
- favor comprehensive tests for future teachers
- see positive effects from emphasis on the basics of reading, writing and math
- want to broaden the curriculum to include computer literacy and foreign languages
- believe teachers' views have not been adequately heard in the current debate on education.

Far from resisting change, teachers want to improve public education. They are overwhelmingly receptive to measures that would upgrade the quality of those attracted to the teaching profession.

For a complete report of the American Teacher Survey, write to the Editor.

Guest Editorial

Why Health Education Must Be in Our Nation's Educational Policy

When health care costs in our country exceed 10 percent of the gross national product, it is time for policymakers to seriously consider the value of health promotion and health education initiatives aimed at the prevention of health problems.

A Balanced Approach to Health Policy

In developing health policy, I believe that we need a balanced approach from four major perspectives if our goal is a healthy society and if we wish to have the reputation of a nation with the most skilled, competent and sturdy workforce. Thus, we must address the issue of health when we construct our *environmental policy*. Our efforts to keep our air and water pure, our food unadulterated and our parks and forests green and available to all people is the first dimension of a balanced health policy for our nation.

The second area in which public policy can make a difference in health is in the *workplace environment*. We must continue to be vigilant about keeping the places in which men and women spend their working time safe and as free as possible from health hazards.

The third area of national concern is the whole realm of medical insurance and the *regulation of the health care delivery system*. There is much we can do to try to achieve a health care system that emphasizes health promotion, wellness and prevention more than surgeries and drugs to repair the damage of poor health habits.

> "With more than 48 million children and youth in the United States attending our schools, health education is surely the greatest opportunity we have to make a difference in the positive health habits of our citizenry."

These three areas—environmental protection, workplace safety and health and the regulation of the health care system—are important parts of a balanced national approach to health policy. The fourth area, which I believe is the most important, is *health education and health promotion in our schools*. Our school system is, in my opinion, one of the best institutions available in our society for meaningful health promotion and health education programs.

School Health Education—A Great Opportunity

With more than 48 million children and youth in the United States attending our schools, this is surely the greatest opportunity we have to make a difference in the positive health habits of our citizenry.

I realize that school health education is no panacea because there are no easy solutions to the many complex health problems confronting our society. However, the schools, through a well-planned health promotion and health education program, will provide students with relevant learning activities that can assist them in making wise health decisions immediately, and later on as adults.

The most critical component of a quality program in our schools is teachers who are interested, prepared and motivated to teach in the area of health education.

With the visible support of school boards and administrators, and in cooperation with health care providers as well as community agencies, our schools can become the centers for health promotion and health education in the 1990s.

Anthony S. Earl
Governor of Wisconsin

DRUG THERAPY IN OFFICE VISITS TO PHYSICIANS

Current concern with the physical and mental consequences of the *abuse* of drugs tends to obscure the benefits derived from their *proper* use. Drugs ordered or administered by physicians can be invaluable in the prevention, diagnosis and treatment of diseases, and have had significant influence on the reduction of morbidity and mortality over the years (e.g., hypertension and stroke). Medications may be given for the acute treatment or chronic management of diseases, for reducing painful and debilitating symptoms, or for retarding the progress of disease. The total complexity of medication therapy is illustrated in its estimated 1981 cost to the United States ($21 billion). While the end benefit of medication therapy is to improve the patient's life style, it must be also viewed in a national context.

Information on drug therapy used in visits to office-based physicians—while not measuring *overall* medication use in the nation—is useful in (1) assisting in the clarification and evaluation of public policy issues in pharmaceutical care, (2) assuring private insurance programs, hospitals, health maintenance organizations, etc., that patients have adequate access to comprehensive pharmaceutical care, and (3) planning public and private health services programs.

> "In 1980 medication therapy was used in nearly three-fourths of all visits to office-based physicians."

Medication therapy was used in an estimated 363.5 million visits to office-based physicians* in the United States in 1980—that is, in almost two-thirds of the total 575.7 million office visits made that year. In analyzing these visits, drugs were mentioned as part of the therapy about 679.6 million times yielding an overall "drug mention" rate of 1.18 drugs per office visit. An average of 1.87 drugs was used per drug visit—the drug intensity rate. Rates were higher than average for patients aged 45 and older, and varied greatly by diagnosis. The following report presents an in-depth analysis of data collected by the 1980 National Ambulatory Medical Care Survey.

Information on medication therapy associated with 18 principal (first listed) diagnoses is given in Table 1. These diagnoses—based on the International Classification of Diseases, Ninth Revision, Clinical Modification—were selected because they were most commonly rendered during office visits in 1980. Of the 18 diagnoses, 15 are illness-related and three are preventive care health services (health supervision of infant or child, normal pregnancy, and general medical examination). For each diagnosis, the table gives the number of office visits, the number and proportion of visits when one or more drugs were ordered or provided, the number of drug mentions, the drug mention rate and the drug intensity rate.

Proportion of Office Visits Utilizing Medication
Medication therapy was used in 63.1 percent of all office visits in 1980. As shown in Table 1, proportions varied widely by diagnosis, from a low of 29 percent for general medical examination to a high of 94 percent for acute or chronic bronchitis and for acute upper respiratory infections. Visits for preventive care services were less likely to be associated with drug therapy than were illness-related visits. Of the illness-related diagnoses, proportions of office visits utilizing drugs were lowest for neurotic or depressive disorders NEC† (52.4 percent) and for the two musculoskeletal conditions: sprains and strains of sacroiliac or other regions of the back (59.7) and intervertebral disc disorders or other disorders of the back (61.2).

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*Excludes physicians in Alaska and Hawaii and those in the specialties of anesthesiology, pathology or radiology.
†Not elsewhere classified.

Table 1—Office Visits, Drug Visits, Drug Mentions, Drug Mention Rates and Drug Intensity Rates, by Selected Principal Diagnoses

United States, 1980

Principal Diagnosis[1]	Office Visits			Drug Mentions	Drug Mention Rate[2]	Drug Intensity Rate[3]
	All Visits	Drug Visits				
	Number in Thousands	Number in Thousands	Percent	Number in Thousands	Rate per Visit	
All diagnoses	575,745	363,489	63.1	679,593	1.18	1.87
Diabetes mellitus	9,551	7,592	79.5	17,496	1.83	2.30
Obesity and other hyperalimentation	8,081	6,589	81.5	15,070	1.86	2.29
Neurotic disorders or depressive disorders, NEC[4]	13,652	7,158	52.4	11,951	.88	1.67
Suppurative and unspecified otitis media	11,748	10,067	85.7	18,168	1.55	1.80
Essential hypertension	25,137	22,282	88.6	46,484	1.85	2.09
Ischemic heart disease	10,430	9,043	86.7	26,523	2.54	2.93
Acute upper respiratory infections of multiple or unspecified sites (acute URI)	16,969	15,977	94.2	32,311	1.90	2.02
Acute pharyngitis or acute laryngitis and tracheitis	10,277	9,020	87.8	16,139	1.57	1.79
Allergic rhinitis	8,439	7,621	90.3	10,479	1.24	1.38
Bronchitis, acute; or not specified as acute or chronic	8,323	7,855	94.4	16,349	1.96	2.08
Asthma	5,921	5,477	92.5	11,655	1.97	2.13
Diseases of sebaceous glands	10,578	8,946	84.6	20,981	1.98	2.35
Osteoarthritis and allied disorders or other and unspecified arthropathies	8,297	6,799	82.0	14,251	1.72	2.10
Intervertebral disc disorders or other and unspecified disorders of back	6,071	3,716	61.2	7,138	1.18	1.92
Sprains and strains of sacroiliac region or other and unspecified parts of back	7,393	4,411	59.7	6,586	.89	1.49
Health supervision of infant or child	17,496	10,341	59.1	16,502	.94	1.60
Normal pregnancy	26,256	8,727	33.2	10,755	.41	1.23
General medical examination	16,078	4,732	29.4	6,624	.41	1.40

[1] Based on the *International Classification of Diseases, 9th Revision, Clinical Modification.*
[2] Drug mentions divided by number of visits.
[3] Drug mentions divided by number of drug visits.
[4] NEC = not elsewhere classified.

Source: National Ambulatory Medical Care Survey, National Center for Health Statistics.

Drug Mention Rates

Drug mention rates—representing the average number of drugs (1.18 in 1980) utilized per office visit—are affected by the number of office visits in which no drugs were utilized. Rates ranged from a low of 0.41 for general medical examination and for normal pregnancy to a high of 2.54 for ischemic heart disease. The lowest rates among illness-related diagnoses were 0.88 for neurotic or depressive disorders NEC and 0.89 for sprains and strains of the sacroiliac or other regions of the back.

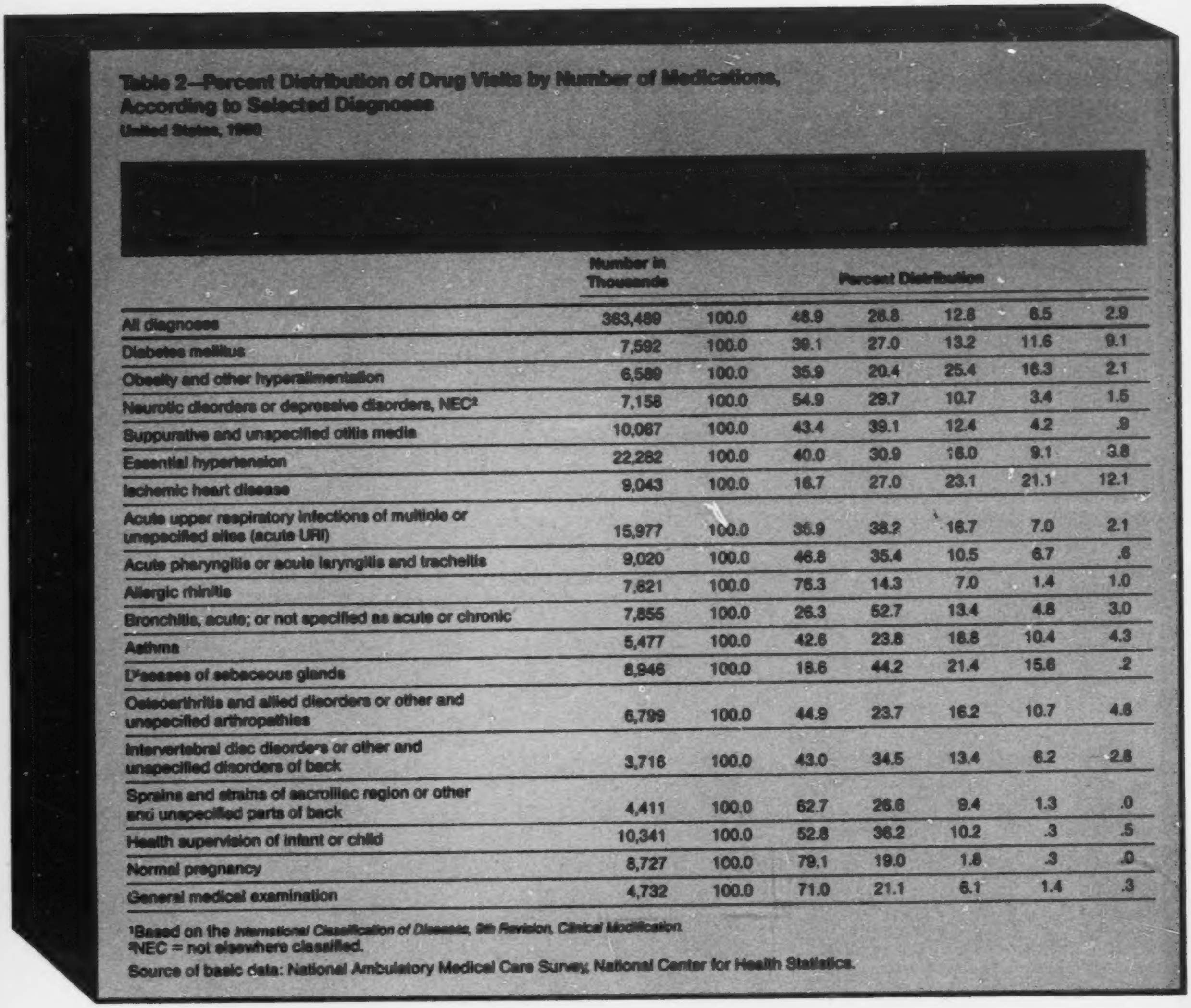


Table 2—Percent Distribution of Drug Visits by Number of Medications, According to Selected Diagnoses
United States, 1980

	Number in Thousands	Percent Distribution					
All diagnoses	363,489	100.0	48.9	28.8	12.8	6.5	2.9
Diabetes mellitus	7,592	100.0	39.1	27.0	13.2	11.6	9.1
Obesity and other hyperalimentation	6,589	100.0	35.9	20.4	25.4	16.3	2.1
Neurotic disorders or depressive disorders, NEC[2]	7,158	100.0	54.9	29.7	10.7	3.4	1.5
Suppurative and unspecified otitis media	10,067	100.0	43.4	39.1	12.4	4.2	.9
Essential hypertension	22,282	100.0	40.0	30.9	16.0	9.1	3.8
Ischemic heart disease	9,043	100.0	16.7	27.0	23.1	21.1	12.1
Acute upper respiratory infections of multiple or unspecified sites (acute URI)	15,977	100.0	35.9	38.2	16.7	7.0	2.1
Acute pharyngitis or acute laryngitis and tracheitis	9,020	100.0	46.8	35.4	10.5	6.7	.6
Allergic rhinitis	7,621	100.0	76.3	14.3	7.0	1.4	1.0
Bronchitis, acute; or not specified as acute or chronic	7,855	100.0	26.3	52.7	13.4	4.8	3.0
Asthma	5,477	100.0	42.6	23.8	18.8	10.4	4.3
Diseases of sebaceous glands	8,946	100.0	18.6	44.2	21.4	15.6	.2
Osteoarthritis and allied disorders or other and unspecified arthropathies	6,799	100.0	44.9	23.7	16.2	10.7	4.6
Intervertebral disc disorders or other and unspecified disorders of back	3,716	100.0	43.0	34.5	13.4	6.2	2.8
Sprains and strains of sacroiliac region or other and unspecified parts of back	4,411	100.0	62.7	26.6	9.4	1.3	.0
Health supervision of infant or child	10,341	100.0	52.8	36.2	10.2	.3	.5
Normal pregnancy	8,727	100.0	79.1	19.0	1.6	.3	.0
General medical examination	4,732	100.0	71.0	21.1	6.1	1.4	.3

[1] Based on the *International Classification of Diseases, 9th Revision, Clinical Modification.*
[2] NEC = not elsewhere classified.
Source of basic data: National Ambulatory Medical Care Survey, National Center for Health Statistics.

Drug Intensity Rates

Drug intensity rates—representing the average number of drugs (1.87 in 1980) utilized per drug visit—ignore nondrug visits and focus on the amount of drug therapy given. Drug intensity rates for individual diagnoses, however, varied differently from corresponding drug mention rates. Ischemic heart disease, the nation's No. 1 cause of death, had the highest drug intensity rate (2.93) as well as the highest drug mention rate; but diabetes mellitus, which ranked eighth in drug mention rates, had the third highest drug intensity rate (2.30). At the other end of the scale, allergic rhinitis, an ubiquitous affliction, used fewer drugs ("intensity") per drug visit (1.38) than neurotic or depressive disorders NEC (1.67), although the latter had the lowest illness-related drug mention rate. Variations in drug mention rates and drug intensity rates among the 18 principal diagnoses are illustrated in Figure A.

Number of Medications

Table 2 shows the proportions of drug visits by number of medications for each listed diagnosis in 1980. One medication per visit was most frequently ordered or provided for the majority of the diagnoses. Diagnoses in which there was a strong tendency toward the use of a single medication included:

- normal pregnancy (79 percent)
- allergic rhinitis (76 percent)
- general medical examination (71 percent)
- sprains and strains of sacroiliac or other regions of the back (63 percent)
- neurotic or depressive disorders NEC (55 percent)
- health supervision of infant or child (53 percent)

Two medications per visit were most likely to be utilized in the following diagnoses:

- bronchitis, acute or chronic (53 percent)
- diseases of sebaceous glands (44 percent)
- acute upper respiratory infections (38 percent)
- ischemic heart disease (27 percent)

However, more than half of the drug visits for ischemic heart disease (56 percent) utilized three or more medications per visit. Other diagnoses with a relatively high proportion of three or more drugs were:

- obesity and other hyperalimentation (44 percent)
- diseases of sebaceous glands (37 percent)
- diabetes mellitus (34 percent)
- asthma (34 percent)
- osteoarthritis and allied disorders (32 percent)
- essential hypertension (29 percent)

Patient Characteristics

The number of drug visits and mentions among female patients in 1980 substantially outnumbered drug visits and mentions among male patients in the ratio of 3 to 2, closely paralleling the sex ratio for office visits in general. As a result, there was no significant sex differential in the proportion of office visits that utilized drugs (63.3 vs 62.8, respectively), nor was there a significant difference between female and male drug mention rates (1.19 vs 1.16, respectively) or drug intensity rates (1.89 vs 1.84). As illustrated in Figure B, both drug-mention and drug-intensity rates steadily rose after age 14, reaching the highest point in the age group 65 and over. High rates in this age group reflect the onset of chronic and debilitating diseases that afflict the aging. They also reflect the presence of concurrent illnesses in the elderly, requiring drugs in *addition* to what was prescribed for the principal diagnosis listed. Figure B also shows that male and female rates were similar until age 65, when rates for female patients significantly exceeded those for males.

> "Nearly half of all prescriptions filled are taken incorrectly."

Drug mention rates increased with advancing age for many of the individual diagnoses. These rates peaked at ages 45-64 for some of the respiratory diseases: acute upper respiratory infections, asthma, and allergic rhinitis. On the other hand, drug mention rates for diseases of sebaceous glands decreased with advancing age, reflecting the type of condition. Young patients usually have acne, which is treatable by medication; older patients are more likely to have sebaceous cysts, which usually require surgery but not necessarily drugs.

Drug Status Characteristics

Figure C characterizes the 1980 drug mentions according to four key dimensions: brand/generic name status, prescription status, composition status, and federal control status.

The merits of prescribing drugs by brand name versus the less costly generic name has been the subject of extreme interest and discussion in recent years. On the average, 7 out of 10 drug mentions by office-based physicians in 1980 were identified by brand name (manufacturer's product name). The following diagnoses had the highest proportions of generic drugs:

- health supervision of infant or child (75 percent)
- general medical examination (45 percent)
- obesity and other hyperalimentation (35 percent)
- acute pharyngitis or laryngitis (34 percent)
- diabetes mellitus (33 percent)

The high proportions in the first two diagnoses reflect the large number of immunizations given during office visits.

Over-the-counter drug mentions represent those situations in which physicians permit self-care by the patient. These drugs do not require a prescription and are thereby less expensive for the patient than prescription drugs. Eighty-three percent of all drug mentions in 1980, on the average, were prescription drugs, and 13 percent were over-the-counter drugs. Diagnoses with very high proportions of over-the-counter drugs were:

- normal pregnancy (49 percent)—due to vitamin mentions
- diabetes mellitus (25 percent)—due to utilization of insulin
- acute upper respiratory infections (17 percent) and acute pharyngitis or laryngitis (15 percent)—due to the availability of numerous over-the-counter antihistamines, decongestants, expectorants and cough suppressants.

Composition status describes the drug according to whether it is a single ingredient drug or a combination drug (including multivitamins). The use of combination drugs offers the patient more convenience, but usually costs more and permits less flexibility in dosage adjustment. Physicians trained since the early 1950s have used single ingredient drugs. Accordingly, for all diagnoses combined, about 70 percent of all drug mentions in 1980 were single ingredient drugs. Particularly high proportions of combination drugs were prescribed in:

- normal pregnancy—due to the large proportions of multivitamins
- health supervision of infant or child—due to the large proportions of combined vaccines
- otitis media

Federal control status comprises drugs with significant potential for addiction or habituation. Such medications are under the regulatory control of the Drug Enforcement Administration (DEA) which assigns such drugs to one of five categories. These categories classify drugs by potential for abuse—ranging from high (Schedule I) to low (Schedule V), and by potential for psychological or physical dependency—ranging from severe (I) to limited (V). About 9 percent of all drug mentions in 1980 were controlled drugs, with the highest frequency of mentions in Schedule IV. The following diagnoses had high proportions of controlled drugs prescribed:

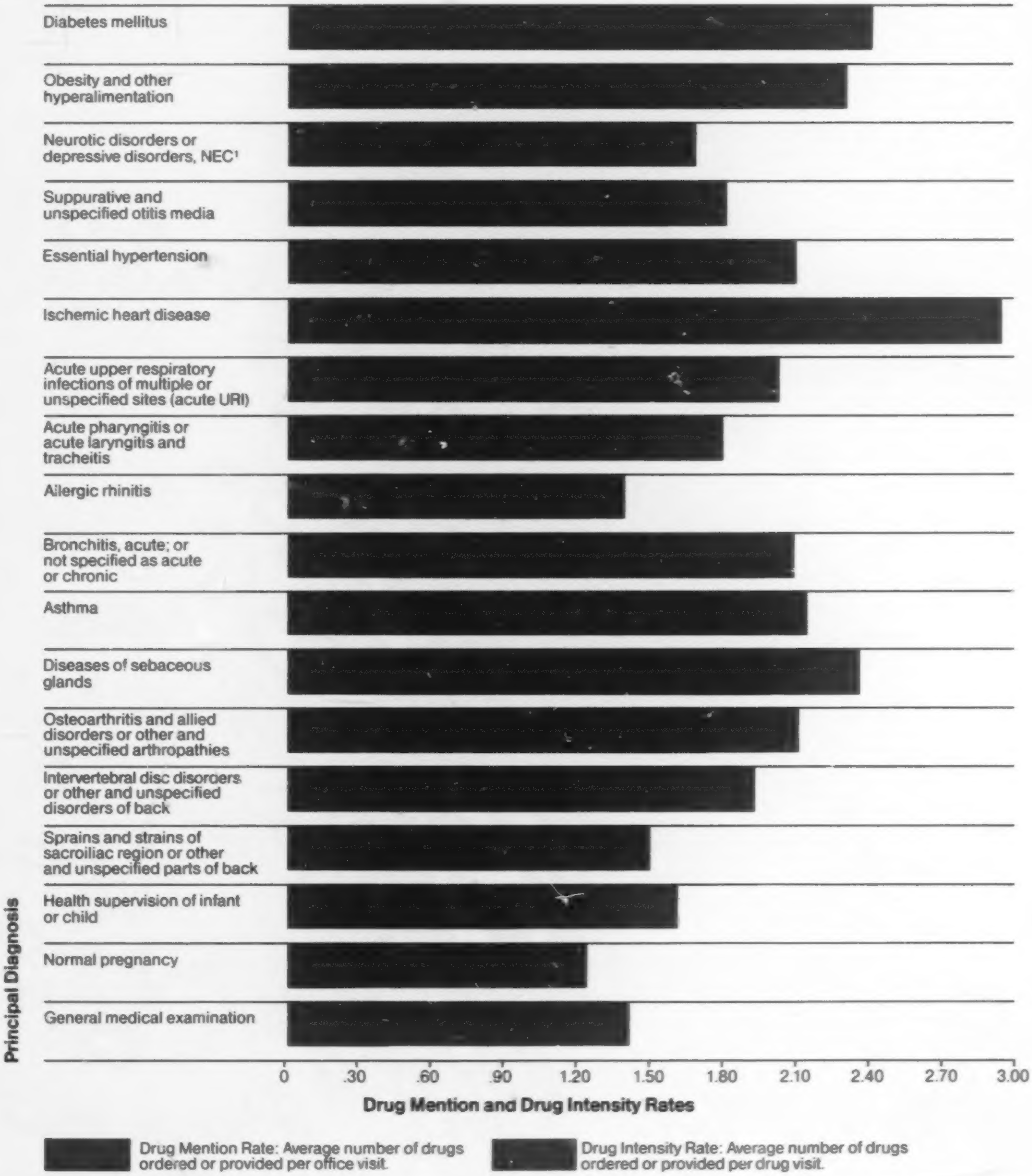
- neurotic or depressive disorders, not elsewhere classified (33 percent)
- obesity and other hyperalimentation (32 percent)
- the two musculoskeletal conditions (about 25 percent each)

Implementation of Proper Drug Use

Ultimate utilization of a drug depends on patient compliance with the physician's instructions. Nearly half of all prescriptions filled are estimated taken incorrectly, so that patients are probably obtaining suboptimum effects from their medications—or they may suffer avoidable side effects, prolonged illness, or even increased hospitalization.

There are also gaps in patient-health professional communication that further complicate medication therapy. On the one hand, patients may not know the appropriate questions to ask, while on the other hand, physicians, nurses and pharmacists may not always allow adequate time to respond to patients' drug information

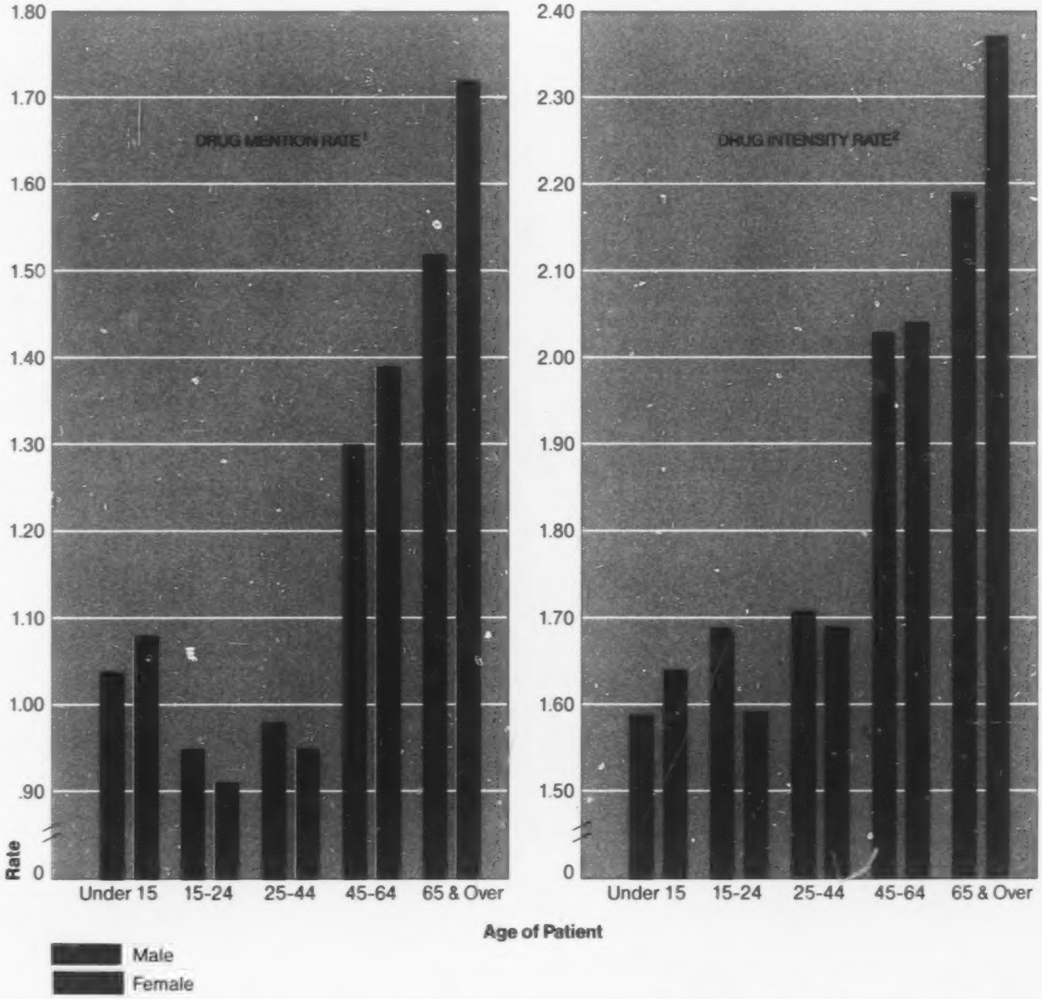
Figure A-Drug Mention Rates and Drug Intensity Rates for Selected Diagnoses
United States, 1980



[1] NEC=Not elsewhere classified.

Source of basic data: National Ambulatory Medical Care Survey, National Center for Health Statistics.

Figure B-Drug Mention Rates and Drug Intensity Rates by Age and Sex of Patient
United States, 1980



[1] Average number of drugs ordered or provided per office visit.
[2] Average number of drugs ordered or provided per drug visit.

Source of basic data: National Ambulatory Medical Care Survey, Nation Center for Health Statistics.

needs. To promote more informed medication taking, the Federal Drug Administration (FDA) has been actively cooperating with the National Council on Patient Information and Education (NCPIE), a privately funded organization representing health professional societies, consumer groups, pharmaceutical manufacturers and voluntary health groups. The NCPIE is carrying on a nationwide education program to encourage both health professionals and patients to improve communications on proper drug usage.

The NCPIE recommends that patients ask the following five basic questions about their prescriptions:

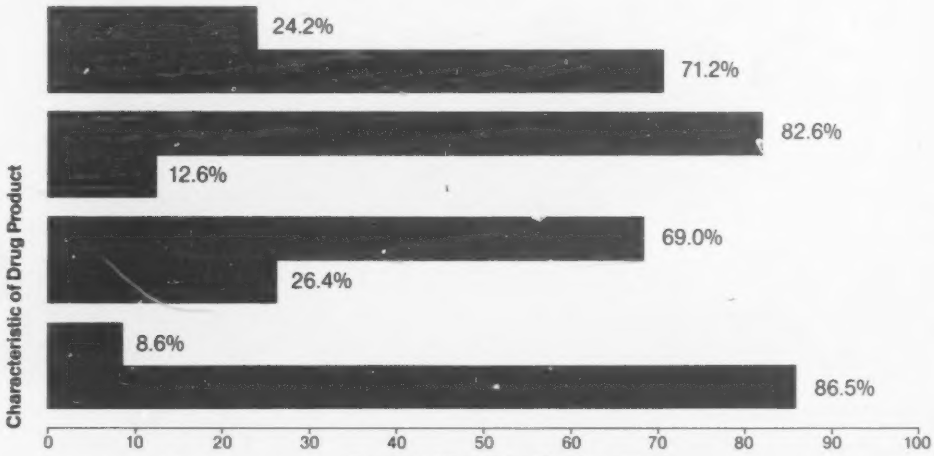
1 *What is the name of the drug and what is it supposed to do?*
2 *How and when do I take it—and for how long?*
3 *What foods, drinks, other medications or activities should I avoid while taking this drug?*
4 *Are there any side effects, and what should I do if they occur?*
5 *Is there any written information about this drug?*

It is important that patients assume an active role as partners with health professionals for successful medication therapy.

Resources for patient information on the safe use of prescription drugs:

- **National Council on Patient Information and Education**
  1625 I Street N.W.
  Washington, D.C. 20006
- **National Pharmaceutical Council, Inc.**
  1030 15th Street, N.W.
  Washington, D.C. 20005
  (Free booklet "Understanding Your Prescription.")

Figure C-Percent Distribution of Drug Mentions, by Characteristics of Drug Product
United States, 1980



[1] Includes multivitamins.
[2] Drug Enforcement Administration controlled.

Note: Percentages do not add up to 100 because the status for some drugs is unknown.
Source of basic data: National Ambulatory Medical Care Survey, National Center for Health Statistics.

CAPSULE BRIEFS

are timely literature selections with broad reader interest.

A Cancer Is Creeping in Canada

An increase in smoking by Canadian women prompts this shocking quote about achieving gender equality: "Because lung cancer mortality rates among males are gradually slowing . . . rates for females may equal those for males by [the year] 2000." (Y. Mao, H. Smith, *Chronic Diseases in Canada* 4:32-34, 1983)

Town-Gown Medical Care Quality Differences: Nil

Survival rates were the same (17 percent), nine months after hospitalization in 51 carefully matched pairs of seriously ill patients who differed only in whether they were cared for by faculty or community physicians at Stanford University Medical Center. The cost of medical care in hospitals was an estimated 11 percent higher (adjusted) for faculty physicians' patients. While not definitive, the study poses important questions for all persons concerned about higher reimbursement costs for teaching hospital confinements. (A.M. Garber, V.R. Fuchs, J.F. Silverman, *New England Journal of Medicine* 310:19:1231-1237, 1984)

The Ultimate Epidemic: Nuclear Winter

A catastrophic view of the aftermath of a nuclear war was provided in two articles by a multidisciplinary research team of more than 20 scientists. Using computer simulation, they examined the biological effects of massive dust and soot quantities injected into the air estimated to absorb enough sunlight to cause widespread cold and darkness. Their assumptions were carefully described. Most seem moderate; e.g., only 30 percent of the world's total nuclear megatonnage would be used. Postwar survivors (30-50 percent of the total world population) would face starvation, freezing conditions in darkness, and near lethal doses of radiation. The authors (Ehrlich *et al*) conclude, "The population size of *homo sapiens* could be reduced to prehistoric levels or below, and extinction of the human species itself, cannot be excluded." Though not without technical controversy, the two studies offer an intensely sobering analysis for all to consider. (P.R. Ehrlich, *et al. Science* 222:1293-1300, R.P. Turco, *et al. Science* 222:1283-1292, 23 December 1983)

Wrong, Wrong, Wrong...

Much of what we think we know about poverty and welfare is turning out to be wrong, according to research scientists at the Institute for Social Research, University of Michigan. Whereas 25 percent of Americans (1969-78) received some welfare, almost half returned to self-sufficiency in a year or two. Only one in 12 receiving welfare in that period depended heavily on it, a group representing only about 2 percent of the overall population. Further, they found that the temporary poor were quite similar to the population as a whole. Required reading for social welfare planners. (G.J. Duncan, *et al. Years of Poverty, Years of Plenty.* Ann Arbor: ISR Publications, 1984)

Social Class and Heart Disease Linked

One used to think of coronary heart disease (CHD) as a condition of executives, but that may be changing. In this Minnesota study of CHD mortality trends, poverty was the only one among 10 socioeconomic and demographic variables in eight state health service areas that was statistically significant. While unable to explain the finding from their data, the authors note the published association between two CHD risk factors, hypertension and cigarette smoking, with lower social classes. Further research is recommended. (R.F. Gillum, *et al, American Journal of Public Health* 74(4):360-362, 1984)

The Operation Was a Success, But...

Cerebral blood flow (CBF) was significantly reduced postoperatively (p 0.001) in 37 Danish patients who underwent cardiac surgery requiring extracorporeal circulation (heart-lung machine). In 11 of these patients one year after surgery, CBF was still slightly less than preoperative levels. Psychosocial and cognitive tests were not performed. Total clinical findings, however, were suggestive of diffuse brain damage following these cardiac operations. (L. Henriksen, *Lancet* 1:816-820, 14 April 1984)

Self-Care, a Cost-Effective Alternative

When appropriately applied, self-care can save medical care dollars, as this study showed. A controlled clinical trial was conducted of self-care education of patients in a health maintenance organization (HMO). Reductions in total medical visits (17 percent) and minor illness visits (35 percent) occurred in three study groups, compared to control groups. For every dollar spent on self-care education, the HMO saved an estimated $2.50 to $3.50. Variations in program design and intervention were used: telephone calls, nurse counseling, written materials. Targeting to high utilizer patients may further increase efficiency. (D.M. Vickery, *et al, JAMA* 250 (21):2952-2956, 2 December 1983)

Adolescent Health, 1984: Fears of War

American young people are aware of the threat of nuclear war and many experience anxiety that may affect their mental wellbeing. In this study 5,572 Finnish adolescents answered 108 questions, mostly related to their present and future life, specifically hopes and fears. It was found that for 12-year-olds, war represented 80 percent of their total fears, and that peace ranked second and only slightly behind work and employment in the category of hopes. Finland, a neutral country, has no nuclear weapons. Should not findings such as these become a priority item for the world's mental health agenda? (T. Solantaus, *et al, Lancet* 1:784-785, 7 April 1984)

REGIONAL VARIATIONS IN MORTALITY FROM CIRRHOSIS OF THE LIVER

During 1983 about 28,000 people in the United States died from chronic liver disease and cirrhosis. This is a slight increase from the estimated total of 27,250 in 1982, but less than the final count of 29,308 in 1981 or that of 30,583 in 1980. Over the past few years, the age-adjusted mortality rate from chronic liver disease and cirrhosis has shown improvement as well, declining to 10.4 per 100,000 population in 1982 from 11.4 per 100,000 in 1981 and from 12.2 per 100,000 in 1980. In 1981 the age-adjusted mortality rate from this disease among men was more than twice that of women, and the disparity between people of all other races and whites was somewhat less.

In the United States, mortality from chronic liver disease and cirrhosis currently ranks as the 9th leading cause of death, although it accounts for just 1½ percent of all fatalities. However, among people aged 35-64, mortality from this disease is exceeded only by that from diseases of the heart, cancer, cerebrovascular diseases and accidents. Cirrhosis is an insidious disease; many of its victims are asymptomatic, appear to be normal, well-nourished and in good health. Yet it is known that the vast majority of cases are secondary to chronic alcohol abuse. Cirrhosis may also be induced by chemicals, can follow the occurrence of certain infections—such as viral hepatitis Type B or congenital syphilis—can be congenital, and in some instances develops after intestinal bypass operations or biliary obstructions.

> "In 1981, the age-adjusted mortality rate from cirrhosis of the liver among men was more than twice that of women."

This article on chronic liver disease and cirrhosis (International Classification of Diseases, Ninth Revision, Code 571) is the fourth in a series of analyses of regional patterns of mortality from leading causes of death.[1-3] In each of the previous studies there were significant geographic variations in the death rates. Therefore, the similar finding(s) in this study were not unexpected.

Table 1

Age-Adjusted Mortality Rate*
Chronic Liver Disease and Cirrhosis
White Males Aged 35-74
United States, 1980 (per 100,000)

Geographic Division	Rate
Pacific	53.5
Middle Atlantic	41.9
UNITED STATES	37.3
South Atlantic	35.9
New England	35.3
East North Central	34.3
Mountain	33.6
West South Central	32.3
East South Central	29.5
West North Central	24.5

*See Tables 3 and 4 on pages 26-27 for states that make up the geographic divisions.

Pacific States Highest Mortality; West North Central Lowest

Table 1 presents the 1980 age-adjusted mortality rates for white males aged 35-74, by geographic divisions. As is evident from the table, the age-adjusted death rate for the United States was 37.3 per 100,000 population. In comparison, the age-adjusted mortality rates for the country's nine geographic areas ranged from a high of 53.5 per 100,000 in the Pacific division to a low of

24.5 per 100,000 in the West North Central division, a difference of 118.4 percent.

Among white females aged 35-74, the mortality pattern was similar to that for males; namely, the age-adjusted mortality rate was highest among women who resided in the Pacific States and lowest for those who lived in the West North Central division of the country. The death rates were 26.2 per 100,000 and 10.6 per 100,000, respectively—representing a disparity of 147 percent. Women residing in the East South Central area also experienced substantially lower mortality than the United States average. Table 2 shows the relative standings of the white female age-adjusted mortality rates from chronic liver disease and cirrhosis.

Table 2

Age-Adjusted Mortality Rate*
Chronic Liver Disease and Cirrhosis
White Females Aged 35-74
United States, 1980 (per 100,000)

Geographic Division	Rate
Pacific	26.2
Mountain	19.8
New England	17.3
Middle Atlantic	17.3
UNITED STATES	16.8
South Atlantic	16.0
East North Central	15.2
West South Central	14.6
East South Central	10.8
West North Central	10.6

*See Tables 3 and 4 on pages 26-27 for states that make up the geographic divisions.

Age-Adjusted Rates by State

Among individual states the age-adjusted mortality rate for white males 35-74 years of age in California—60.0 per 100,000—was more than four times that in South Dakota (14.8 per 100,000). Other areas in which the death rate from cirrhosis was more than 25 percent greater than the national average included the District of Columbia, Nevada, New York and Rhode Island. On the more favorable side, Idaho, Arkansas, Nebraska, Iowa, Kansas and Minnesota joined South Dakota in experiencing age-adjusted mortality rates that were just two-thirds or less than the figure for the country as a whole. Figure A presents the five geographic areas with the highest and lowest white male mortality rates from chronic liver disease and cirrhosis.

> "Cirrhosis is insidious; many of its victims are asymptomatic, appear to be normal, well-nourished and in good health."

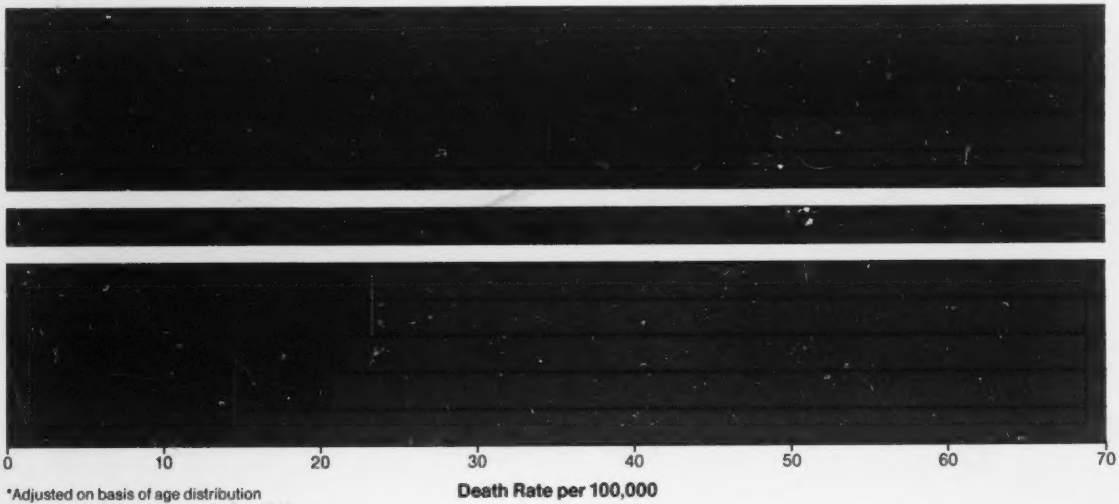
Figure B shows the comparable analyses for white females. As may be seen, the states with the lowest age-adjusted death rates were Iowa, Alabama, Nebraska, Minnesota and Tennessee. In Iowa the death rate was just one-fifth the rate of 37.1 per 100,000 experienced in Nevada. In 1980 California, Hawaii, New Hampshire and Delaware also recorded age-adjusted mortality rates above 25 per 100,000.

Death from chronic liver disease and cirrhosis was not a frequent event among white men aged 35-44 who resided in the West North Central states; the mortality rate from this disease was just 8.9 per 100,000. In fact, during 1980, there were 10 or fewer deaths from cirrhosis in five of the seven states in this geographic area. This favorable experience also occurred in 14 other states. In addition, in Wisconsin, Maryland, Oregon, Minnesota and South Carolina, the mortality rate was less than 9.0 per 100,000. On the other hand, in the Pacific division, the mortality rate was 20.7 per 100,000. California reported a death rate of 25.3 per 100,000 and that was even exceeded by the experience in New York, Nevada and New Mexico; in the latter state, the rate of 32.0 per 100,000 was more than twice the national average for this age group.

Figure A-Geographic Areas With Highest and Lowest Mortality From Chronic Liver Disease and Cirrhosis

White Males Aged 35-74, United States, 1980

Age-Adjusted* Death Rate per 100,000



*Adjusted on basis of age distribution of the United States total population, 1940

Young White Women Experience Low Rates

Relatively few white women aged 35-44 died from cirrhosis and related causes in the United States during 1980. In 32 states there were 10 or fewer deaths. The lowest mortality rate from cirrhosis occurred in the East South Central division—3.9 per 100,000—and the highest—11.6 per 100,000—was registered in the Pacific states. In California the mortality rate was 13.5 per 100,000.

At ages 45-54 the lowest mortality from cirrhosis and related diseases among white males occurred in the West North Central division—25.1 per 100,000. Iowa, Nebraska, South Carolina and Arkansas all reported death rates of 24.0 per 100,000 or less. At the same time, mortality rates more than twice as large—in excess of 50 per 100,000—were experienced in Nevada, California, West Virginia, New Mexico and Rhode Island. In the Pacific division the death rate from cirrhosis —60.4 per 100,000—was markedly larger than in the Middle Atlantic states—the geographic division with the next highest death rate.

Similar to the rates found for males, female mortality at ages 45-54 was highest in the Pacific and lowest in the West North Central states. By state, the death rates were highest in Nevada, Delaware, Montana and California—32 per 100,000 or higher—and lowest in North Dakota, Minnesota and Alabama—less than 10 per 100,000.

Among white males aged 55-64 and for those 65-74 years of age, the Pacific division was once again the geographic area with the highest mortality rate. In like manner the West North Central division experienced the lowest death rate from chronic liver disease and cirrhosis. For each age group, the mortality rates were a little over 80 per 100,000 in the Pacific states and were about half as large in the West North Central area. For both age groups the national average was roughly 60 per 100,000.

Men Aged 55-64 Living in District of Columbia Experience Highest Rates

For males ages 55-64 the death rate in the District of Columbia—namely, 168.3 per 100,000—was substantially higher than the rate in California—91.2 per 100,000—the state with the next highest mortality rate. California also experienced the second highest mortality rate at ages 65-74; namely, 89.7 per 100,000. For this age group Delaware reported a mortality rate of 94.3 per 100,000. Men aged 55-64 and 65-74 residing in Arkansas during 1980 experienced the lowest death rate from cirrhosis. The death rate in Kansas was also very low among those aged 65-74. For white males 10 years younger, favorable death rates were reported in Minnesota, Nebraska, Missouri and Mississippi—40 per 100,000 or less.

The lowest mortality from chronic liver disease and cirrhosis among white women aged 55-64 was recorded in the East South Central division. At ages 65-74 the West North Central states had the distinction of having the best mortality experience. On the other hand, the Pacific division experienced the highest death rates at ages 55-64 and 65-74—just as it had for the two previous age groups.

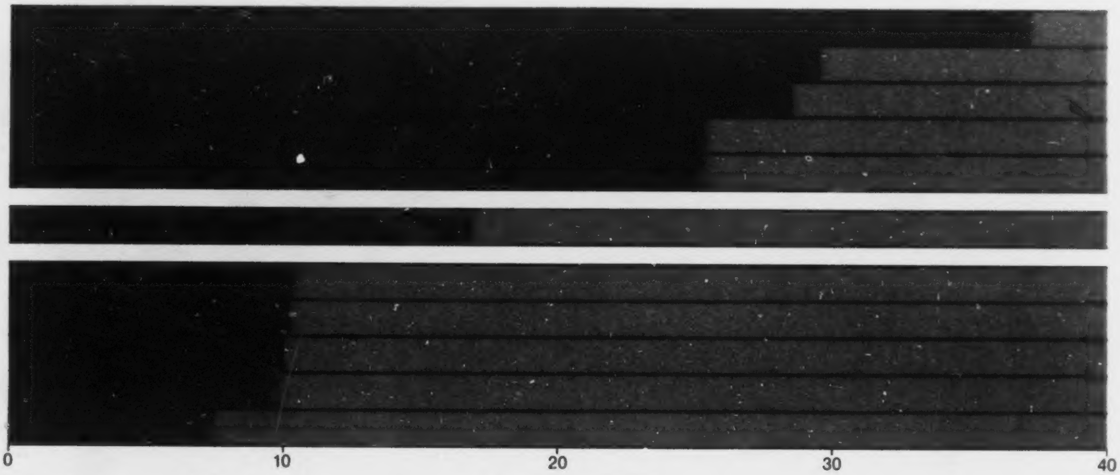
White females 55-64 years of age residing in Nevada had a mortality rate from cirrhosis of 57.9 per 100,000, followed by that in New Mexico and California. California also recorded the third highest death rate among women 10 years older—just slightly lower than the rate in Nevada and New Hampshire. The lowest mortality rate from cirrhosis among women aged 55-64 was reported in Kentucky, while at ages 65-74 Arkansas recorded the most favorable experience.

For each of the four age-specific groups mentioned before, Figure C shows the geographic areas with either the most or least favorable mortality experience. Complete details used for the analyses are given in Tables 3 and 4.

Figure B–Geographic Areas With Highest and Lowest Mortality From Chronic Liver Disease and Cirrhosis

White Females Aged 35-74, United States, 1980

Age-Adjusted* Death Rate per 100,000



*Adjusted on basis of age distribution of the United States total population, 1940

Table 3—Mortality From Cirrhosis of the Liver Among White Men

United States—1980

Area	Death Rate per 100,000 Ages 35-74*	Ages 35-44	Ages 45-54	Ages 55-64	Ages 65-74
UNITED STATES	37.3	14.7	39.1	57.7	64.4
NEW ENGLAND	35.9	14.2	32.5	52.6	79.1
Maine	38.2	†	40.8	55.9	64.4
New Hampshire	31.7	†	29.5	42.8	82.8
Vermont	34.0	†	†	62.3	†
Massachusetts	36.3	16.2	30.7	51.9	82.1
Rhode Island	47.0	†	53.7	65.5	84.9
Connecticut	32.7	11.7	26.3	49.9	80.3
MIDDLE ATLANTIC	41.9	18.7	41.8	61.2	76.4
New York	48.5	25.9	48.3	68.6	80.8
New Jersey	37.0	13.4	36.5	56.9	73.4
Pennsylvania	36.0	12.2	36.6	54.4	72.4
EAST NORTH CENTRAL	34.3	12.8	35.2	52.7	63.2
Ohio	30.3	9.5	31.0	48.3	58.6
Indiana	29.6	9.0	32.7	48.4	49.7
Illinois	40.1	18.7	40.8	55.7	74.2
Michigan	39.1	15.5	40.3	63.5	63.2
Wisconsin	26.6	6.3	26.1	40.7	63.0
WEST NORTH CENTRAL	24.5	8.9	25.1	38.6	44.4
Minnesota	24.0	8.3	27.2	34.1	44.7
Iowa	23.3	†	20.1	44.4	45.0
Missouri	26.8	12.7	26.2	37.4	50.9
North Dakota	31.9	†	†	57.6	†
South Dakota	14.8	†	†	†	†
Nebraska	23.3	†	21.0	34.7	54.7
Kansas	23.7	†	26.3	41.1	34.5
SOUTH ATLANTIC	36.9	13.6	39.8	59.3	59.6
Delaware	46.2	†	45.4	61.2	94.3
Maryland	31.3	7.1	25.9	54.3	75.6
District of Columbia	59.2	†	†	168.3	†
Virginia	34.7	9.9	42.2	47.3	66.6
West Virginia	46.5	15.0	63.6	62.1	69.8
North Carolina	33.9	18.5	31.8	58.4	42.4
South Carolina	28.6	8.4	22.8	60.3	48.4
Georgia	34.9	10.8	39.9	60.3	50.2
Florida	42.1	18.6	47.7	63.4	60.8
EAST SOUTH CENTRAL	29.5	12.0	30.1	46.8	49.3
Kentucky	30.2	15.0	29.8	42.4	55.1
Tennessee	30.5	12.2	30.2	54.5	44.4
Alabama	28.4	10.0	30.0	45.4	48.9
Mississippi	27.3	†	30.3	39.9	49.9
WEST SOUTH CENTRAL	32.3	11.6	33.8	53.5	52.6
Arkansas	21.7	12.1	24.0	31.9	27.0
Louisiana	35.1	14.5	30.5	54.4	73.7
Oklahoma	26.1	†	27.7	50.9	42.1
Texas	35.1	12.3	37.8	58.1	56.1
MOUNTAIN	33.6	15.2	37.2	50.2	50.4
Montana	27.0	†	†	61.8	50.8
Idaho	20.8	†	†	53.5	†
Wyoming	37.2	†	†	†	†
Colorado	29.8	15.9	26.1	47.8	48.4
New Mexico	46.6	32.0	55.6	47.8	64.9
Arizona	33.6	14.4	41.5	42.5	54.5
Utah	25.7	†	35.5	43.2	†
Nevada	57.8	26.9	70.4	81.6	76.3
PACIFIC	53.5	20.7	60.4	82.3	83.3
Washington	32.9	9.6	32.3	55.2	64.6
Oregon	39.2	8.2	49.7	60.2	67.7
California	60.0	25.3	67.5	91.2	89.7
Alaska	30.9	†	†	†	†
Hawaii	43.6	†	†	†	†

*Adjusted on basis of age distribution of the United States total population, 1940.
†Rates not shown—10 or less deaths.

Source of basic data: Mortality figures from Division of Vital Statistics, National Center for Health Statistics—rates computed in the Health and Safety Education Division of the Metropolitan Life Insurance Company.

Table 4—Mortality From Cirrhosis of the Liver Among White Women

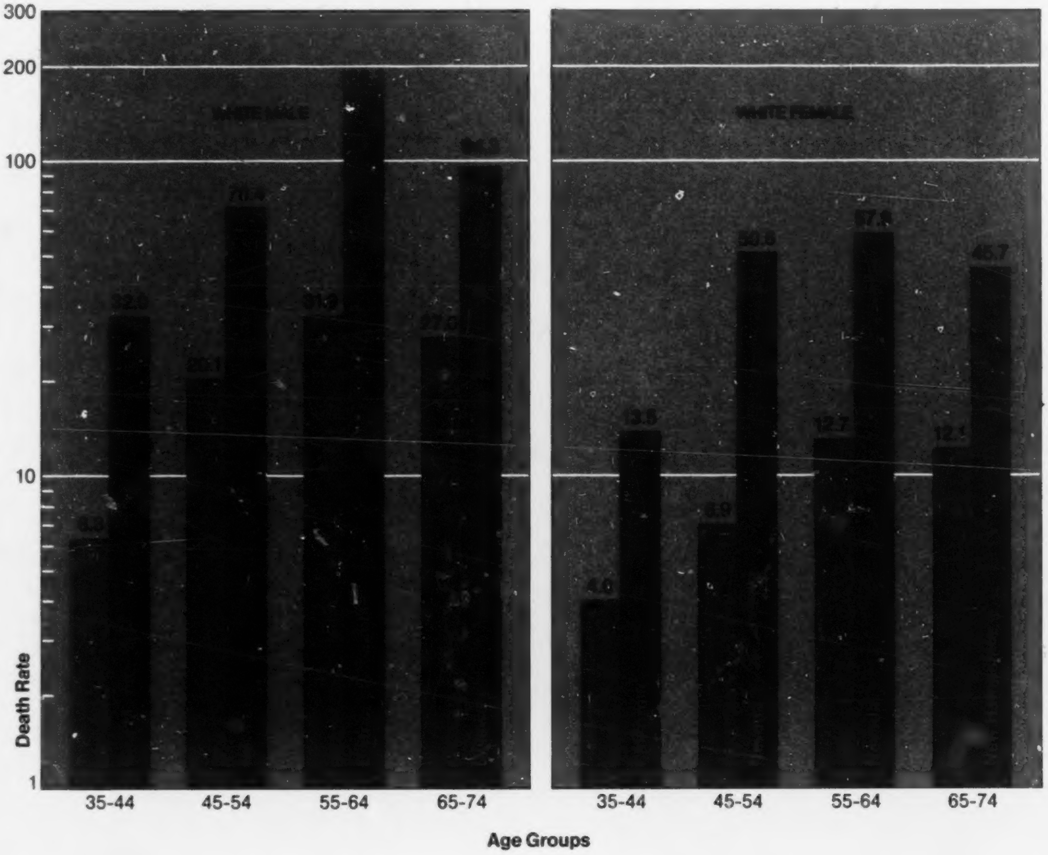
United States—1980

Area	Death Rate per 100,000				
	Ages 35-74*	Ages 35-44	Ages 45-54	Ages 55-64	Ages 65-74
UNITED STATES	16.8	6.7	18.0	25.6	28.1
NEW ENGLAND	17.3	7.0	17.4	28.1	29.0
Maine	14.6	†	†	23.0	30.4
New Hampshire	25.3	†	28.8	38.4	45.7
Vermont	13.2	†	†	†	†
Massachusetts	19.2	9.7	19.1	29.5	29.8
Rhode Island	15.3	†	†	32.8	†
Connecticut	13.9	†	14.2	24.4	26.8
MIDDLE ATLANTIC	17.3	7.9	16.5	25.7	32.1
New York	20.3	9.5	20.9	30.9	32.6
New Jersey	18.4	8.4	16.5	26.7	37.9
Pennsylvania	12.6	5.4	10.7	18.6	28.2
EAST NORTH CENTRAL	15.2	6.4	15.9	22.3	27.1
Ohio	15.2	6.0	16.1	21.2	29.3
Indiana	12.7	†	10.3	23.2	28.3
Illinois	15.1	6.4	17.3	22.3	22.8
Michigan	17.4	7.8	17.1	26.0	31.5
Wisconsin	14.5	8.4	16.4	17.1	23.4
WEST NORTH CENTRAL	10.6	4.3	11.1	16.2	18.4
Minnesota	10.2	5.0	8.5	13.6	23.6
Iowa	7.4	†	†	14.5	14.2
Missouri	12.1	6.9	12.2	17.9	17.5
North Dakota	11.7	†	†	†	†
South Dakota	11.2	†	†	†	†
Nebraska	10.0	†	17.7	†	†
Kansas	11.9	†	14.4	21.2	14.9
SOUTH ATLANTIC	16.0	5.0	18.9	25.0	25.7
Delaware	25.3	†	43.1	†	†
Maryland	13.4	6.5	16.2	17.0	20.3
District of Columbia	†	†	†	†	†
Virginia	14.5	†	16.7	24.9	26.1
West Virginia	13.2	†	11.9	27.3	13.8
North Carolina	12.1	†	14.7	21.7	20.5
South Carolina	14.1	†	13.8	20.5	33.7
Georgia	13.7	6.4	14.7	19.5	22.5
Florida	21.1	7.4	27.1	31.4	28.7
EAST SOUTH CENTRAL	10.8	3.9	12.1	15.6	20.0
Kentucky	11.3	†	12.3	12.7	28.9
Tennessee	10.3	†	11.9	15.8	15.8
Alabama	9.8	†	8.8	16.4	18.1
Mississippi	13.1	†	18.4	19.2	15.8
WEST SOUTH CENTRAL	14.6	4.8	15.9	24.6	23.2
Arkansas	10.7	†	12.2	18.1	12.1
Louisiana	16.7	7.8	18.6	20.0	32.0
Oklahoma	11.3	†	12.4	16.4	17.4
Texas	15.8	4.0	16.7	29.3	25.0
MOUNTAIN	19.8	7.7	24.6	29.1	27.1
Montana	21.6	†	34.0	†	†
Idaho	11.9	†	†	†	†
Wyoming	17.8	†	†	†	†
Colorado	19.5	9.6	25.6	18.8	34.3
New Mexico	20.8	†	†	46.0	31.6
Arizona	19.7	10.2	20.5	30.8	26.5
Utah	13.0	†	†	†	†
Nevada	37.1	†	50.6	57.9	44.6
PACIFIC	26.2	11.6	28.3	39.3	41.5
Washington	17.1	7.2	19.7	22.8	29.6
Oregon	15.4	†	13.4	22.2	36.8
California	29.4	13.5	31.7	44.6	44.5
Alaska	†	†	†	†	†
Hawaii	28.4	†	†	†	†

*Adjusted on basis of age distribution of the United States total population, 1940.
†Rates not shown—10 or less deaths.

Source of basic data: Mortality figures from Division of Vital Statistics, National Center for Health Statistics—rates computed in the Health and Safety Education Division of the Metropolitan Life Insurance Company.

Figure C–Geographic Areas With Highest and Lowest Mortality From Chronic Liver Disease and Cirrhosis
White Population Aged 35-74, By Sex, United States, 1980
Death Rate per 100,000



Socioeconomic Factors Linked to Regional Differences

Numerically, the death toll from chronic liver disease and cirrhosis is not very large when compared with that from heart disease or cancer. However, it is a major cause of death among people 35-74 years of age and furthermore, as an acquired disease, it should be preventable. The link to alcohol abuse has been clearly documented. Therefore, increased public awareness of this causal factor could have a significant impact in reducing mortality.

It has been suggested that there is an association between alcohol abuse and state unemployment rates. The correlation between rising socioeconomic status and declining cirrhosis death rates has also been confirmed. Both factors may explain some of the reported regional mortality differences.

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[1] Regional Variations in Mortality from Diseases of the Heart. *Statistical Bulletin* 65:8-14, Jul-Sep 1984.

[2] Geographic Variations in Mortality from Cancer. *Statistical Bulletin* 63:2-6, Jul-Sep 1982.

[3] Regional Variations in Mortality from Diabetes. *Statistical Bulletin* 63:8-11, Jan-Mar 1982.

SB
STATISTICAL BULLETIN

Contents & Index 1984

VOL. 65

Contents

Page

JAN-MAR

A Message to Our Readers 1
The Statistical Bulletin: 1984 and Beyond 2
Alcohol and Other Drug Abuse Among Adolescents 4
Capsule Briefs: Timely Literature Selections 14
United States Population Outlook 16
Measurement of Overweight 20
Historical Perspectives .... Back Cover

APR-JUN

From the Editor's Desk 1
Recreational Boating Fatalities: 1978-82 2
The Federal Role in Recreational Boating Safety 7
Projections of Population Growth at the Older Ages 8
The Medical Care Challenge of an Aging Population 13
Capsule Briefs 14
How Children and Adolescents Perceive Alcohol and Other Drug Abuse 16
Accident Death Toll: 1983 22
Historical Perspectives .... Back Cover

JUL-SEP

From the Editor's Desk 1
Drinking and Driving 2
Preventing DUI in Adolescents 6
Nationwide Priorities to Prevent Drunk Driving 7
Regional Variations in Mortality From Diseases of the Heart 8
Decline in Heart Disease Deaths: Progress and Puzzle 15
Capsule Briefs 16
Gains in U.S. Life Expectancy 18
Historical Perspectives .... Back Cover

OCT-DEC

From the Editor's Desk 1
Growth of School-Age Population 2
Survey Reveals Concerns/Attitudes of Teachers 10
Why Health Education Must Be in Our Nation's Educational Policy 11
Drug Therapy in Office Visits to Physicians 12
Capsule Briefs 20
Regional Variations in Mortality From Cirrhosis of the Liver 22
Historical Perspectives .... Back Cover

Index

Statistical Bulletin 1984

Issue Page

A

Accidents, fatal
  alcohol-involved, motor vehicle Jul-Sep 2
  boating, recreational and water transport, U.S., 1978-1982 Apr-Jun 2
  catastrophes, by type, U.S., 1979-1983 Apr-Jun 22
  estimated death toll, 1983 Apr-Jun 22

Adolescents
  alcohol and drug abuse Jan-Mar 4
  perceptions about alcohol and drug abuse Apr-Jun 16

Alcohol abuse
  boating accidents Apr-Jun 2
  motor vehicle accidents Jul-Sep 2
  perceptions and trends, children and adolescents, 1975-1983 Apr-Jun 16
  prevalence and trends, high school seniors 1975-1982; youths ages 12-17, 1972-1982 Jan-Mar 4

B

Boating, recreational and water transport
  fatalities, U.S., 1978-1982 Apr-Jun 2

C

Catastrophes, deaths in, by type,
  U.S., 1979-1983 Apr-Jun 22

Cigarettes
  perceptions and trends, children and adolescents, 1975-1983 Apr-Jun 16
  prevalence and trends, high school seniors 1975-1982; youths ages 12-17, 1972-1982 Jan-Mar 4

Cirrhosis of the liver, deaths,
  white population, ages 35-74, by sex, U.S., geographic, 1980 Oct-Dec 22

D

Deaths
  expectation of life by age and sex, U.S., 1980 and 1900-02 to 1983 Jul-Sep 18
  mortality ratios according to range of weights in 1983 Metropolitan Life Height and Weight Tables Jan-Mar 20
  See specific causes.

Drinking and driving
  Nationwide Priorities to Prevent Drunk Driving (Guest Ed.) Jul-Sep 7

Issue Page

Drug abuse
  perceptions and trends, children and adolescents, 1975-1983 Apr-Jun 16
  prevalence and trends, high school seniors 1975-1982; youths 12-17, 1972-1982 Jan-Mar 4

Drug therapy
  in office visits to physicians, by diagnosis, 1980 Oct-Dec 12

E

Expectation of life, U.S.
  by age and sex, 1900-02 to 1983 Jul-Sep 18
  by age, race and sex, 1980 Jul-Sep 18
  See Survivorship.

H

Heart, diseases of, deaths,
  white population, ages 35-74, by sex, U.S., geographic, 1980 Jul-Sep 8
  Decline in Heart Disease Deaths: Progress and Puzzle (Guest Ed.) Jul-Sep 15
  Height and weight tables, ages 25-59, Metropolitan Life Jan-Mar 20

L

Life tables, by age, race and sex,
  U.S., 1980 Jul-Sep 18

Longevity. See Expectation of life; Survivorship.

M

Metropolitan Life Insurance Company
  height and weight tables, by body frame and sex, ages 25-59, 1959 and 1983 Jan-Mar 20
  Mortality. See Deaths.

N

Nonwhite population
  ages 65 and over, U.S., March 1982 Apr-Jun 8
  expectation of life and mortality rate by age and sex, U.S., 1980 Jul-Sep 18

O

Older ages
  characteristics of population, ages 65 and over, U.S., March 1982 Apr-Jun 8
  population changes, ages 65 and over, U.S., 1970-2050 Apr-Jun 8
  The Medical Care Challenge of an Aging Population (Guest Ed.) Apr-Jun 13

	Issue	Page
Overweight measurement		
body mass indices, 1959 and 1983 Metropolitan Height and Weight Tables	Jan-Mar	20
mortality ratios according to range of weights in 1983 Metropolitan Height and Weight Tables	Jan-Mar	20
P		
Population		
characteristics of population, ages 65 and over, U.S., March 1982	Apr-Jun	8
population changes, ages 65 and over, U.S., 1970-2050	Apr-Jun	8
population growth of the U.S. by age, 1970-2050	Jan-Mar	16
school-age population by geographic region, U.S., 1980-2000	Oct-Dec	2
school-age population, U.S., 1970-1983 and projections to 2050	Oct-Dec	2
Why Health Education Must Be in Our Nation's Educational Policy (Guest Ed.)	Oct-Dec	11
S		
Safety		
Federal Role in Recreational Boating (Guest Ed.)	Apr-Jun	7
Nationwide Priorities to Prevent Drunk Driving (Guest Ed.)	Jul-Sep	7
Preventing DUI in Adolescents	Jul-Sep	6
Senior citizens. See Older ages.		
Sex ratio		
U.S. population, by age, 1970-2050	Jan-Mar	16
Survivorship		
chances of, at specified ages, U.S., 1900-02 to 1980	Jul-Sep	18
See Expectation of life.		
W		
Weight		
body mass indices, 1959 and 1983 Metropolitan Height and Weight Tables	Jan-Mar	20
mortality rates according to range of weights in 1983 Metropolitan Height and Weight Tables	Jan-Mar	20

Re: Gains in U.S. Life Expectancy
Statistical Bulletin, Vol. 65,
pp. 18-19, Jul-Sep 1984.

Table 1—Expectation of Life (on page 19) provides the most recent information on this subject. However, the text on page 18 does not reflect all these changes. Readers who would like the completely updated version may write to SB at the address on the inside cover.

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HISTORICAL PERSPECTIVES

25 YEARS AGO

IN THE 1959 STATISTICAL BULLETIN

Metropolitan statisticians focused attention on the health problems of persons aged 65 and over, and reported that they had benefited from the advances in medical knowledge and practice. Considerable progress had been made in controlling some of the chronic and infectious diseases such as diabetes and pneumonia. In addition, risks associated with surgery sharply decreased. These advances contributed to improved mortality among persons over 65. The death rate at this age fell from an average of 74.1 per 1,000 in 1935-36 to 61.7 in 1955-56. (Rate for 1980-81 is 51.8 per 1,000—ed.) (Page 6, March)

In recognition of the approaching sixth White House Conference on Children and Youth, Metropolitan reported that extraordinary progress had been made in improving the health of children and youth in the U.S. since the first conference held 50 years earlier. Mortality at the younger ages had been significantly reduced because of the control of the four principal communicable childhood diseases—measles, scarlet fever, whooping cough and diphtheria. The introduction of antibiotics, broad-scale immunization programs, and the marked improvement in environmental sanitation helped to reduce the incidence of communicable diseases. Chances of survival also increased. In 1910 one out of every five babies failed to survive to age 21; by 1959 the proportion was one out of 25. (Currently, the proportion is one out of 50—ed.) (Page 6, February)

Metropolitan reported that hospital services had expanded to include: training of physicians and nursing personnel, serving as centers for community health education and preventive medicine, and advancing medical knowledge. For example, Columbia-Presbyterian Medical Center, in cooperation with Metropolitan Life Insurance Company, undertook a benchmark study on the causes and means of preventing accidents in childhood—the leading cause of death in that period of life. Hospital and medical costs were being reimbursed increasingly by voluntary health insurance. As of mid-1958, about 123 million people in the U.S. were covered for hospital expense—10 times the number in 1940. Surgical expense coverage had grown even more rapidly during the period—from 5.3 to 111 million. (Page 1, April)

The number of marriages continued to decline in 1958. The rate of 8.4 per 1,000 was the lowest recorded since 1932. Statisticians blamed the recession for the downswing in marriages, but anticipated that they would soon rebound to the prerecession level. (Except for 1974, 1975 and 1983, the number of marriages has increased every year since 1958—ed.) The wide geographic variation in the trend of marriages from 1957 to 1958 was largely attributed to changes in marriage regulations. For example, in Indiana (where a waiting period had been instituted) the number of marriages decreased by 45 percent; in Mississippi (where the age for marriage was raised) the number fell by 42 percent. (Page 1, May)

Metropolitan reported on various population surveys showing a decline in heart disease death rates among white persons aged 45-64 between 1949 and 1956. The Framingham, Mass., study showed the rate for women to be less than half that among men. DuPont Company found that, by occupation, the executive-professional group and factory workers had approximately the same incidence rate—about one-fourth less than clerical workers. It was noted that a number of large business organizations found that their cardiac-patient employees were able to resume work after recovery with little or no limitation of activity. In addition, it was mentioned that the outlook for the middle-aged person with cardiac disease could be improved by prompt medical care, correction of overweight and adherence to appropriate dietary and living habits. (Page 1, February)

The upsurge in births that started after the end of World War II remained high. For five successive years, (1954-58) the annual number of births exceeded four million, totaling almost 21 million. This greater fertility was sustained by families having a second or subsequent child. The rates for fourth and higher birth orders, however, were still below those that prevailed up to World War I. (Page [illegible] February)

SB 1 (10-84) Printed in U.S.A.